Management by vitality

Dorenbosch, L.W.

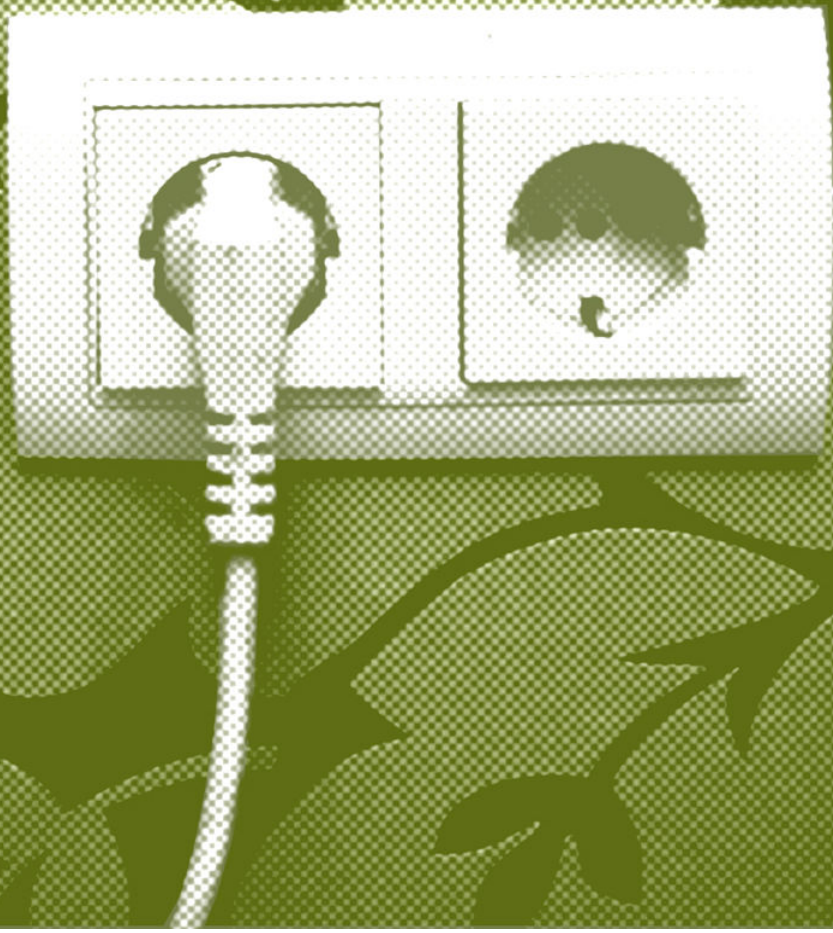
Publication date:
2009

Document Version
Publisher's PDF, also known as Version of record

Luc Dorenbosch

Management by Vitality

Examining the "Active" Well-being and Performance outcomes of High Performance Work Practices at the Work Unit Level



Management by Vitality

Examining the "Active" Well-being *and* Performance Outcomes of High Performance Work Practices at the Work Unit Level

Proefschrift ter verkrijging van de graad van doctor aan de Universiteit van Tilburg, op gezag van de rector magnificus prof. dr. Ph. Eijlander, in het openbaar te verdedigen ten overstaan van een door het college voor promoties aangewezen commissie in de aula van de Universiteit op woensdag 17 juni 2009 om 14.15 door

Luc Willibrord Dorenbosch

geboren op 18 augustus 1978 te Venlo.

Promotores: Prof. Dr. Jaap Paauwe
Prof. Dr. Rob Poell

Copromotor: Dr. Marc van Veldhoven

Dorenbosch, Luc Willibord

ISBN-NR: 978-90-5335-190-1

Cover design: Luc Dorenbosch / Ridderprint
Cover foto: Juul Steyn
Druk: Ridderprint BV, Ridderkerk

Proefschrift Universiteit van Tilburg /
Dissertation Tilburg University
Oldendorff Research Institute (ORI)
2009

Table of Contents

Chapter 1

General introduction

> 'To deal with uncertainty, companies are trying to transform themselves into lean, high-performance organizations that can adapt and change continuously. And ironically, that effort leads them back to the employee - and a paradox: For even though they are driven to cut costs by eliminating people, executives are realizing that their people are the key to building those new organizations. With restructuring and downsizing, the employee is less disposable than ever, because in a leaner workforce, every individual needs to have the critical skills to move a company forward. And its people - not technology or processes - who learn, innovate, and turn information into products and services.' - *W.W. Allen, CEO Phillips Petroleum (in The Chief Executive, August, 1996).*

1.1 RESEARCH CONTEXT

Developments in global economic and technological activity led to an era characterized by the growth of competition in nearly all sectors of the economy, whether publicly owned or privately financed, whether small or large companies, whether involved in traditional or modern types of business (Boxall & Purcell, 2003; Docherty, Forslin, Shani & Kira, 2002). Consequently, traditional business models do not guarantee long-term success, as product life cycles get shorter, the diffusion of product innovations evolves faster than ever before, spreading quickly across national borders with almost no restrictions what so ever. To survive, organizations have to maintain a constant state of alertness in order to stay competitive and survive in contemporary market dynamics. Inevitably, these changes have translated into new thoughts on organizing work and managing the workforce in a way that it enables organizations to quickly adapt and maximize their performance. Otherwise, sceptics argue that these developments in some way might negatively affect employee work life and well-being in such way that it also could constrain the initial goals of new workforce management reforms. What do new thoughts on labour/HR management entail? And how might its implications for employees either support or obstruct the organization's survival in a contemporary economic context?

1.1.1 The emergence of a high performance paradigm

Due to the fast changes, turbulences and insecurities that dominate today's organizations' *outside* market environment, organizations are forced to also look *inside* and critically review their "work systems" in terms of the organizational structures, procedures, operational standards and the labour management policies they put in practice. As such, there already has been a slowly evolving shift from a strict hierarchical distinction between management and labour in the planning and execution of work (Boxall & Purcell, 2003), towards work systems in which employees gain higher discretion in the planning and execution of work tasks, as an aspect of further job enrichment (Hackman & Oldham, 1980; Parker, Wall & Cordery, 2001) The features of an enriched work organization refer to employees who are empowered and equipped with the functional room and resources to adequately and efficiently respond to uncertainties in the production or work process (Wall, Cordery & Clegg, 2002). This response is understood as *discretionary employee effort* (Bailey, 1993), which consists of the work role orientations and behaviours of employees that could make a positive difference in terms of operational performance and overall organizational competitiveness (Wright, Dunford & Snell, 2001).

However, increasing operational performance by enriched work designs is considered not to be enough. As work in Western economies gets more service-oriented, employees face, for instance, an increase in the use of (IT) technology and the centrality of internal and external customer demands in their work. To reap the potential gains of IT and customer loyalty/satisfaction, employees need to have the right skills, knowledge and the motivation to display qualitative effort (Hesketh & Neal, 1999; Bowen & Waldman, 1999). Therefore, besides work organizational factors, other modern HR management domains have gained importance, like the attraction and continuous development of up-to-date employee skills and knowledge plus the management of individual and group performance through appraisals and incentives. Consequently, the combination of (work) organizational and HR management practices that support and enhance the employee's ability, motivation and opportunity to expend discretionary effort underpins the contemporary writing and research on High Performance Work Systems (HPWSs, Huselid, 1995; Appelbaum, Bailey, Berg & Kalleberg, 2000). The basic causal *flow* that signifies the route through which HPWSs impact organizational performance can be displayed as follows:

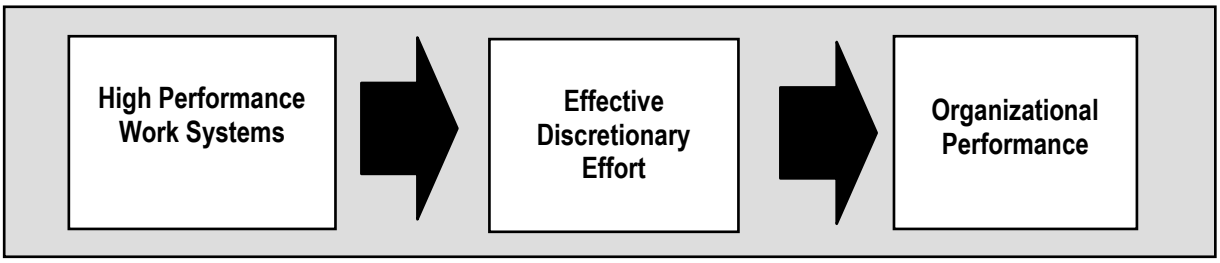


Figure 1-1: The HPWS-Performance Link (Appelbaum et al., 2000)

It is in these models that ideas on the participatory organization of work, the "high-road" management of labour (HRM) and trust-based labour relations are more strongly integrated into an overarching "high performance" framework (Giles, Murray & Bélanger, 2002). Despite the fact that there is still little consensus on the exact elements of such work systems that would stimulate modern day business success, the consensus on the expression *high performance work system* or *high performance workplace* is very broad. As Giles et al. (2002) observe:

> '…stretching as it does from the university classroom to the corporate boardroom, from the seat of government to offices, stores and factory floors, from the pages of magazines and newspapers to the outer reaches of the Internet' (p. 1).

Given this attention, some scholars have argued we have entered some sort of "high performance" paradigm (Godard & Delenay, 2000; Godard, 2004; Lloyd & Payne, 2006), in which the management and organization of high quality labour is regarded as a direct source of competitive advantage in an increasingly dynamic market economy.

1.1.2 Employee well-being in a high performance paradigm

As the spotlight turns to the management of high performance through qualitative employee effort, there is an increasing interest in whether these modern management techniques also increase work pressure and subsequently affect employee well-being and health. The tensions between the management of a high performing workforce and a healthy workforce might get ever more salient in the contemporary workplace. The shift from an industry-based to a service-based economy, a shift from jobs which require employee-machine interaction to employee-customer interaction entails a shift from technology-dependent productivity to labour-dependent productivity. Therefore, in many service-based work situations, productivity depends more on the

application of discretionary human resources like skills, knowledge, creativity or cooperative and problem-solving behaviours and less on the work pace determined by the production process (Bélanger, Giles & Murray, 2002). As such, the economic performance effects of employee discretionary effort get more direct and are less likely to be mediated by technology, machinery or work process specifics than they are in traditional production/technology-based work contexts (Coyle-Shapiro, Kessler & Purcell, 2004). Also, in highly computerized service settings, the added value of information technology is essentially dependent on employee know-how and their active use of IT in order to reap its productivity potential (Hesketh & Neal, 1999). Thus, in a changing economic context this would indicate an increasing economic value of the organization's *human* resources as opposed to other organizational resources. Typical about the *human* resource is that it cannot be separated from people (Edwards, 2000). Therefore, it can be argued that the individual employee is the "human vehicle" of valuable skills/knowledge and the instigator of effective discretionary effort and behaviour. If so, its mental and physical well-being is more than just a *side effect* of work that gets dealt with as a separate issue. Rather, as shown in Figure 1-2, employee well-being and health become an important condition for organizational success to the extent that companies rely on the "human vehicle" in order to remain competitive. As a consequence, the management of organizational high performance and employee health and well-being get more entwined.

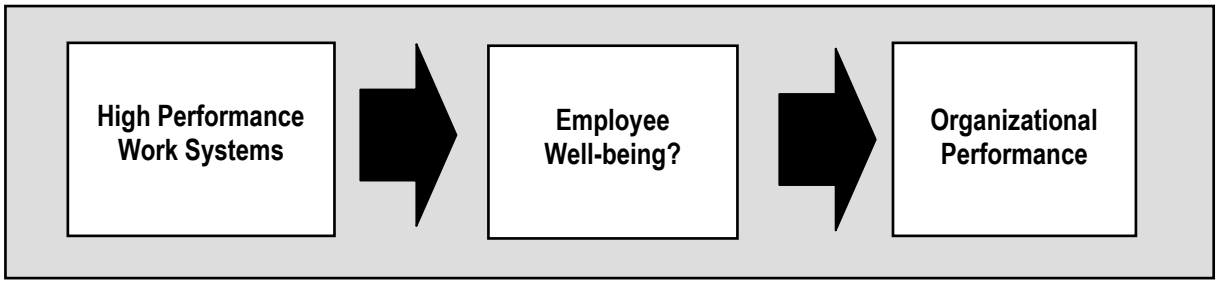


Figure 1-2: The Role of Employee Well-being in the HPWS-Performance Link

1.1.3 Possible tensions in managing performance *and* well-being

Critical scholars have argued that in high performance-oriented organizations, the heightened demand for higher labour productivity through discretionary effort, comes at the expense of employee well-being. When organizations want to maximize their outputs, and when the needed input is increasingly sought in qualitative

employee effort, the high performance demands are more directly placed upon the workforce. The management goal of performance maximization could therefore be obtained through the intensification of the work process and "management by stress" (Delbridge & Turnbull, 1992; Parker & Slaughter, 1995; Godard, 2001; Ramsay, Scholarios & Harley, 2000). Work intensification in a high performance framework is argued to occur through the investment in autonomous, incentivized work with room for growth which signals employer expectations of high employee investments (Tsui & Wu, 2005). Additionally, the creation of high performance workplaces might signify a managerial control strategy that emphasizes employee benefits as means to gain employee "compliance" with work intensification, job insecurity, ambiguity and stress (Harley, 1995 in Ramsay et al., 2000). This would lead employees to accept an increase in work pressure in order to boost productivity levels. Consequently, this translates into a work situation in which alongside the acknowledgement of the increasing value of the human resource, the risks of adverse employee health effects also increase. Mohrman and Cohen (1995) argue that this creates a tension for modern organizations in their strife for competitiveness through people, which entails:

> '[…] that people have the opportunity for personal growth, skill development and connectedness to others, but they also are confronted with a lack of security, ambiguity, competing demands, and unrelenting work pressures'. (p. 377)

The possible "dark side" of new ways of labour management calls into question the two-faced nature of new labour management concepts. As depicted in Figure 1-3, this poses questions with regard to the tensions between employee well-being and discretionary effort in a HPWS framework.

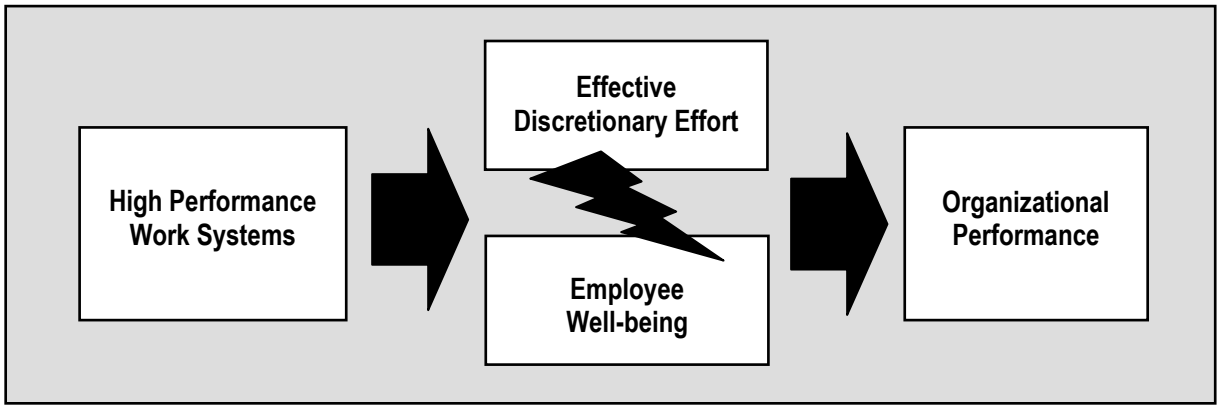


Figure 1-3: Possible tensions in the Management of Performance *and* Well-being

1.1.4 Resolving possible tensions: management by vitality?

The organization's constant strife to obtain better performance creates a certain paradox. On the one hand, good organizational performance is more and more attributable to the organization's distinctive pool of human resources. On the other hand, the management of these resources towards performance can produce adverse well-being effects which could undermine the human resource's capacity to add value to the organization. However, much of the empirical research concerning the impact of strategic HRM on organizational performance has largely excluded the effects on individual employee well-being. Similarly, individual-level research on the determinants of employee well-being and health has largely excluded the contribution to the organizational goal of high performance (Guest, 2002). In this way, the possible tensions in the management of organizational performance *and* employee well-being get by-passed and remain a blind spot. This depicts an important knowledge gap which recently has received more specific scholar attention. For example, at the organizational level, the emerging literature on "organizational health" (e.g., Cox, 1988; Hart & Cooper, 2001) or "sustainable work systems" (Docherty et al., 2002) depict a view on labour management that takes into account short–term organizational effectiveness without compromising future effectiveness when draining employee resources like health and well-being. With regard to individual health and well-being, research shifted its attention from work and organizational aspects that cause ill health and *un*well-being to those aspects that promote positive and optimal employee functioning as a reflection of high and active health (e.g., Seligman & Csikszentmihalyi, 2000; Hofmann & Tetrick, 2003).

These streams of research acknowledge that high performance cannot last without healthy human resources, just as good as active employee functioning/performance would signify a state of high health and well-being. In line with these new foci, this dissertation looks into the possibility to distinguish a set of work and organizational factors that signify a "common ground" for the management of a healthy *and* productive workforce. Furthermore, in search for common factors that simultaneously promote well-being and performance, we introduce the concept *employee vitality* as an indicator of a healthy, productive and sustainable workforce (see also Fay & Kamps, 2006).

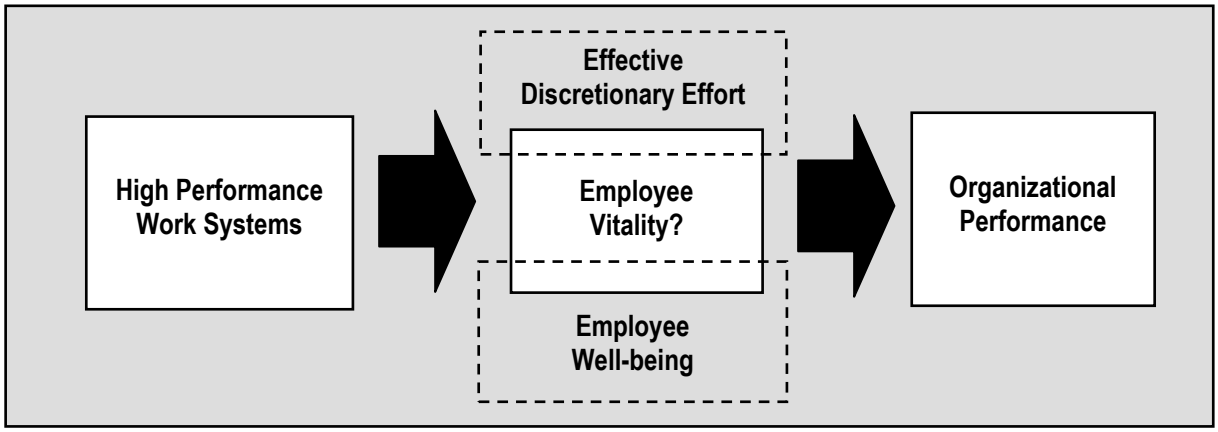


Figure 1-4: Employee Vitality in the HPWS-Performance Linkage

As shown in Figure 1-4, employee vitality will be argued to be an element of both discretionary employee effort and employee well-being. As such, tensions between performance and well-being rationales can be more effectively addressed and possibly resolved. On the whole, Figure 1-4 represents the key linkage in this dissertation, which addresses how contemporary HR management approaches like High Performance Work Systems (HPWSs) impact organizational performance and whether employee vitality intermediates this linkage. Specifically, this dissertation will focus on the linemanager's role in the enactment of HPWSs, which makes that the key linkage is examined at the work unit level of analysis.

Consequently, the following problem statement is formulated:

> In search for a "common ground" of the simultaneous enhancement of employee well-being and organizational performance, to what extent does employee vitality intermediate the relationship between High Performance Work Systems and work unit performance?

1.2 RESEARCH QUESTIONS AND DISSERTATION STRUCTURE

Following from the problem statement, four research questions that will guide the six core chapters of this dissertation are shown in Table 1-1 below.

Table 1-1: Main Research Questions (RQ) per chapter

RQ	Main Questions	Chapter	Type
1	What does previous theory and research conclude on how work organizational and management factors can form a "common ground" in their effect on employee well-being and organizational performance; what are the main gaps and similarities in these theoretical approaches; and how can this be used in further research?	**2**	Theoretical
2	How does a new concept of *employee vitality* contribute to the research on employee well-being *and* performance and what are the specifics of a validated employee vitality construct?	**3 & 4**	Conceptual/ Validation
3	What is a High Performance Work System Framework and which High Performance Work Practices are empirically associated with the underlying assumptions of the HPWS framework?	**5 & 6**	Conceptual/ Validation
4	To what extent does the adoption of High Performance Work Practices enhance *employee vitality*; and to what extent does employee vitality intermediate HPWPs and work unit performance?	**7**	Empirical / Explanatory

In answering the first research question, *Chapter 2* provides an overview of the theoretical approaches towards the management of well-being and performance that have emerged in various research disciplines. The fundamental differences between these approaches and strengths of each approach provide the contours and basis of this dissertation's research framework. The following chapters are based on a large-scale data collection between May 2006 and February 2007 within a total of 13 Dutch organizations. The second research question is addressed in *Chapter 3 and 4*. Here, we focus on the conceptualization, measurement and validation of the employee vitality

concept, based on questionnaire data from 736 employees working in 51 work units from the 13 organizations. Similarly, Chapter *5 and 6* deal with the theoretical and measurement specifics and the validation of enacted High Performance Work Practices (HPWPs) at the work unit-level. Here, we use matched data from structured interviews with first line managers and HR professionals representing a total of 53 work units from 12 of the 13 organizations involved. *Chapter 7* contains two empirical studies. The first study tests the multi-level effects of HPWPs on employee vitality. In the second study, the intermediating role of employee vitality between HPWPs and work unit performance is tested. In both studies, multi-actor data from line managers, HR professionals and employees are used. Finally, *Chapter 8* concludes with a discussion on the possibilities of a common ground for the management of well-being *and* performance and the intermediating role of employee vitality. Here, we elaborate on results of this dissertation study, the contribution to research in this domain, the strengths and weaknesses and the implications for research and practice.

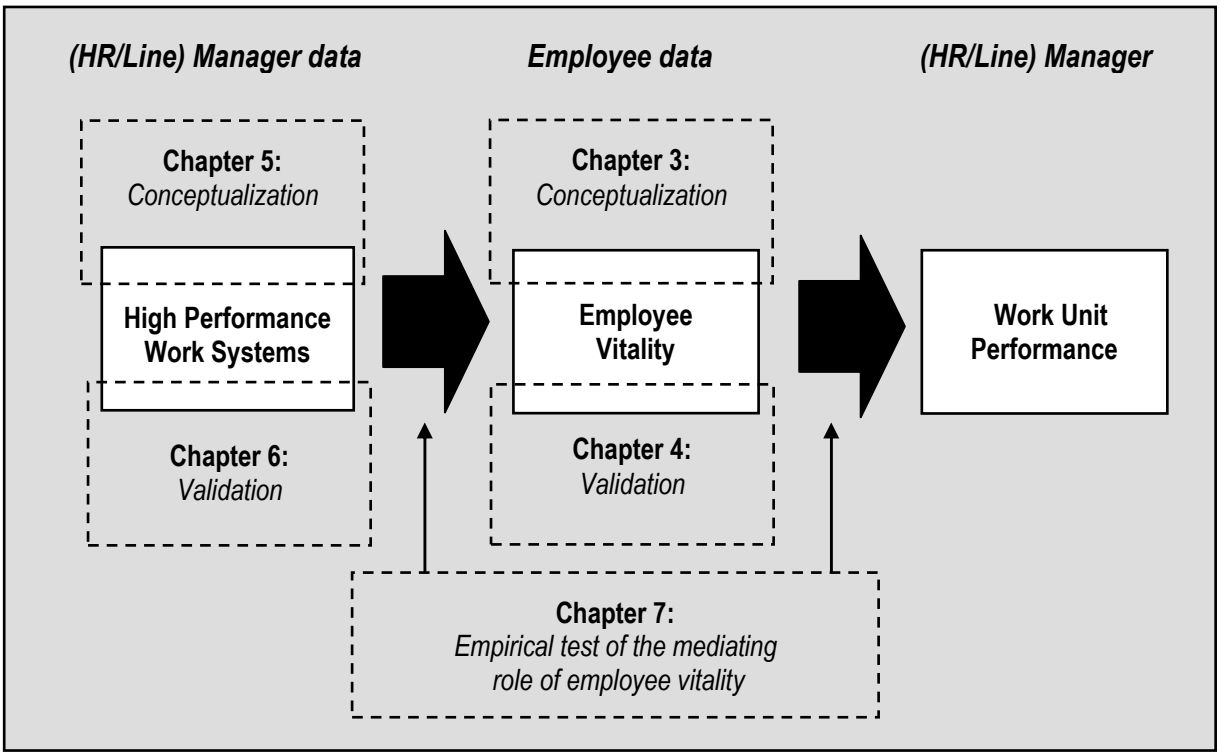


Figure 1-5: Overview of the linkages between the main chapters in this dissertation

Figure 1-5 above, graphically shows the structure of this dissertation with regard to the connection between the conceptual and empirical chapters and the main variables and linkages that will be studied. As shown first, the key concepts of employee vitality (in chapter 3 and 4) and High Performance Work Practices (in chapter 5 and 6) are examined before the empirical relationship between the variables is tested (in chapter 7). In the next chapter, we start with an structured overview of theories and research on the work and organizational factors that affect performance and well-being. At the end of chapter 2, a more detailed research framework is presented which will guide the chapters that follow.

1.2.1 Relevance of this Dissertation

Other than in previous research, this dissertation project deals with several "sharp edges" of simultaneously promoting employee well-being *and* organizational performance in a contemporary work context. As the inherent conflicts between attaining high performance goals without compromising employee interests and well-being is almost a daily managerial reality, theory and empirics seem to be stuck in either very optimistic *win-win* or very pessimistic *win-lose* models of thought. By addressing and integrating the knowledge from different disciplines, at different levels of analysis and with different methodological insights, the relevance of this dissertation study lies in exploring the "balancing game" of managing well-being *and* performance. Moreover, it takes into account the recent notions of high performance work systems, "positive employee well-being" concepts and "active performance concepts" derived from different academic disciplines in order to examine the value of an integrative concept of employee vitality. The academic relevance lies in the further conceptualization and valid measurement of these concepts. The managerial relevance lies in providing decentralized managers and HR professionals with recommendations about which and how certain work and organizational factors improve performance, while sustaining employee well-being. This can serve as a starting point for evaluating the sustainability of the present work practices. Furthermore, the concept of employee vitality can bridge the often decoupled policies on performance and well-being improvement.

Chapter 2

The management of well-being *and* performance: optimistic, pessimistic, sceptical and integrative theoretical perspectives

2.1 INTRODUCTION

With a large stream of research on the (labour) management antecedents of employee performance and organizational effectiveness, the work and organizational determinants of occupational health/well-being have drawn an equal amount of research attention. However, Murphy and Cooper (2000: p.1) state that 'for the most part, these two lines of research inquiry have been carried out independently and few empirical studies have sought common antecedents and cross-cutting factors'. So far, the management antecedents of performance enhancement are often assumed to positively relate to employee well-being, just like employee well-being enhancement is assumed to positively relate to employee and organizational performance. Who would contest that productive employees feel better than unproductive ones? And who would contest that healthy employees are more productive than unhealthy ones? Similarly, many theories underlying the management towards well-being and organizational performance tend to share the same aspects and emphasize a "happy/healthy-productive worker" (Staw, 1986; Wright & Staw, 1999; Wright & Cropanzano, 2000) or a "high-commitment/high-involvement workplace" (Walton, 1985; Lawler, 1986; Arthur, 1994) as a source of organizational success. In contrast,

several authors have contested this *optimistic* perspective on employee well-being and organizational performance. From a *pessimistic* perspective, they state that management factors that enhance organizational performance could also come at the expense of employee well-being while high performance pressures can impair employee health and safety. As such, they could form a trade-off (e.g., Godard, 2001; Ramsay et al., 2000; Wallace & Chen, 2006; Campion & Thayer, 1987). Otherwise, authors taking a *sceptical* perspective argue that work and organizational factors that relate to employee well-being are not necessarily similar to those that would relate to organizational performance and vice versa (Kelly, 1992; Peccei, 2004; Sonnentag, 2002). Here, it is doubted whether the processes affecting employee well-being and organizational performance share the same antecedents. Additionally, recent literature on "organizational health" (Murphy & Cooper, 2000; Hart & Cooper, 2001; Hofmann & Tetrick, 2003) and "sustainable work systems" (Docherty, Forslin & Shani, 2002; Huzzard, 2003) explicitly allocate an equal amount of attention to the improvement of employee well-being *and* organizational performance and/or effectiveness. These newer lines of academic inquiry can be labelled as *integrative* theoretical perspectives that try to resolve the entwined dilemma's surrounding the management of employee well-being and organizational performance.

Research linked to either optimistic, pessimistic, sceptical or integrative theoretical perspectives[1], each deliver unique theoretical and empirical contributions with regard to the linkages and tensions between well-being and performance. However, without recognizing the "competing hypotheses" (Wall & Wood, 2005) that seem to underlie the domain of the management of employee well-being and performance, theoretical advancements will fall short of understanding the dilemmas modern day organizations face. To date, this has not led to a clear integrative theoretical framework for understanding how organizations can promote and retain an efficient, productive, high quality workforce while simultaneously looking after its employees' general health and well-being. And yet, better insight in the possibilities and constraints for organizations to foster a "common ground" of work and organizational characteristics which predict *both* beneficial employee well-being and performance outcomes is of increasing relevance in a contemporary work context.

[1] See Peccei (2004) who used a similar categorization of theoretical stances towards the management of well-being and performance.

2.1.1 Goal and structure of this chapter

The goal of this chapter is to systematically discuss past theory and research on the mechanisms underlying management antecedents of well-being *and* performance. First, we address theories, models and research findings reflecting either an optimistic, pessimistic, sceptical or integrative theoretical perspective. Second, we summarize the overlap and differences between the different perspectives. Finally, we propose research directions in order to overcome the conflictuous nature of well-being-performance theories and research in order to shed light on what might constitute this "common ground" for performance and well-being promotion. This adds up to a guiding research framework for the chapters to come. Below, Figure 2-1 shows the conceptual building blocks which will be addressed in this chapter.

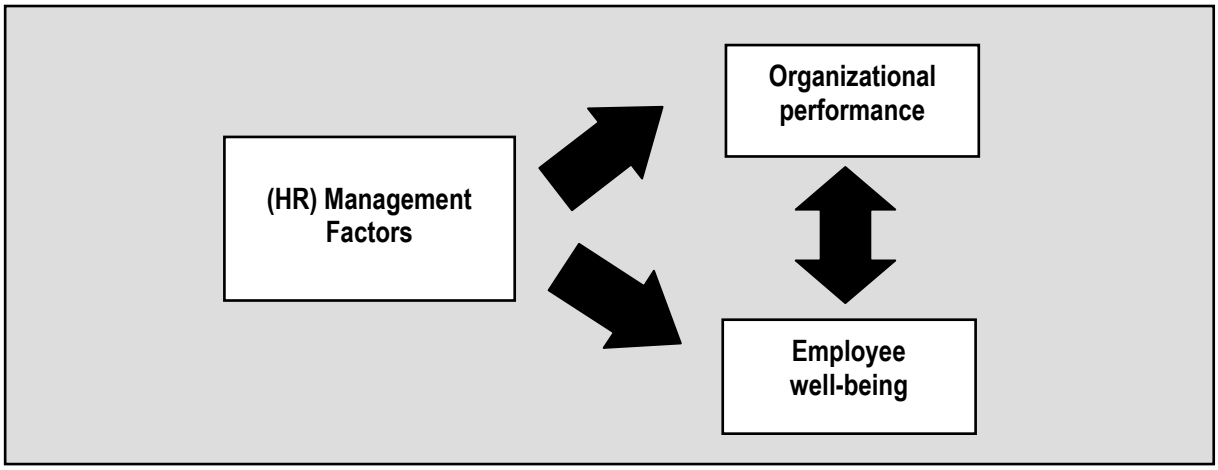


Figure 2-1: Conceptual Building Blocks in this Chapter

2.2 Definitions of Well-being, Performance and Management

What exactly constitutes work and organizational factors and what is meant by well-being and performance is not easily caught in standard definitions. Therefore, in this section, the building blocks (as shown in Figure 2-1) are discussed in more depth.

2.2.1 Defining well-being

Starting with employee well-being, Danna & Griffin (1999) make a distinction between the concepts of employee *health* and *well-being*. They place health in the context of medical physiological and psychological symptomology referring to known illnesses like cardio-vascular diseases, backaches or depression. However,

beyond the specific physical and/or mental health symptoms, employee well-being 'tends to be a more broad and encompassing concept that takes into consideration the "whole person"' (Danna et al., 1999: p. 364) or the "whole employee". Therefore, employee well-being in the workplace would also include both context-free measures of life experiences (e.g. life satisfaction, happiness) and the employee's experience or affect towards the job, employer or organization (e.g. job satisfaction, job attachment) or towards more facet-specific dimensions (e.g. satisfaction with pay or co-workers). In defining employee well-being (determined by work and organizational factors), our focus is on proximal indicators which directly tap well-being in the *work domain*. This means that we exclude distal, context-free health symptoms and affective life experiences which could be determined by a variety of factors in employee's private medical and/or social domain. Although there are other and more detailed perspectives on the notion of employee health and well-being (see Hofmann & Tetrick (2003) for an excellent discussion), the majority of work and organizational research tends to aim at the work-related *affective well-being* and the *work-related health* dimensions of overall employee well-being (Parker, 2000). This has manifested itself in a range of studies concerned with work and organizational factors positively influencing affective well-being indicators like job satisfaction (Iaffaldano & Muchinsky, 1985), organizational commitment (Allen & Meyer, 1990) or employee morale (Vandenberg et al., 1999). On the other hand, occupational health and job stress research have traditionally focused on the work and organizational factors that affect mental health or work-related strain indicators like fatigue, anxiety or emotional exhaustion. Therefore, in defining well-being for this dissertation, we make a distinction between work-related affective well-being and health.

2.2.2 Defining performance

Just like employee well-being, performance is also a multifaceted concept (Sonnentag & Frese, 2002). With regard to research on the effect of HRM on organizational performance, studies have included indicators of financial (stock value, profits, return on investment) or market performance (sales revenues, market growth). Problems with explaining variance in this type of performance by work and organizational factors is the distal nature of these indicators (Paauwe & Boselie, 2005). This refers to the broad scope of factors outside of the work organizational domain that positively or negatively affect these indicators, like currency exchange rates in the case of sales, country differences in legislation on profit taxes or the

regional density of other competitors in the case of market growth (Brewster, 1999). For a more proximal performance indicator, *labour* productivity is suggested to form an adequate indicator as it includes the value added by labour set off against the number of worked hours and/or the labour-related costs. This places organizational performance more directly in the work domain. Boxall and Purcell (2003) make a notable distinction between a *cost-effectiveness* and a *cost-minimisation* approach to labour productivity. The cost-minimisation approach emphasizes that labour productivity could be raised by reducing the relative labour-related costs, while the cost-effectiveness approach includes the notion that higher *actual* costs are justified when a surplus of added value is attained which also contributes to the reduction of (future) *potential* costs. In performance literature, cost-effective labour productivity relates to the concept of employee discretionary effort (Bailey, 1993), which encompasses those aspects of work behaviour that employees contribute at their discretion and cannot be easily placed under formal management control. Appelbaum et al. (2000: 26) state that for managers it is of relevance to get 'employees to apply their creativity and imagination to their work and to exploit their intimate and often unconscious knowledge of the work process'. This extra-role effort at the employee's discretion is believed to add value when interacting with (internal/external) customers, advanced technology or operational uncertainties, while at the same time it could reduce (potential) costly work process inefficiencies. Therefore, from here, performance is referred to as cost-effective, discretionary employee effort.

2.2.3 The management of well-being *and* performance

Over the years, a multitude of academic disciplines have been concerned with the investigation of the work and organizational factors and processes that affect both/either employee well-being and/or performance. Table 2-1 shows a crude categorization of those academic disciplines and the emphasis they place on the antecedents of either employee well-being or organizational performance. Driven by questions on the impact of work and organizational factors on either the promotion of organizational performance or the reduction of health risks at work, all of the disciplines try to identify those manageable work and organizational variables that impact individual or groups of employees. Stemming from different backgrounds, the precise criterion of interest, the level of analysis and the explanatory mechanisms tend to differ to a great extent.

Table 2-1: Categorization of Academic Disciplines

Emphasizing Well-being as outcome	Emphasizing Performance as outcome	Emphasizing Well-being *and* Performance as outcome
Industrial Relations	Strategic Management	Organizational Health
Stress Management	Human Resource Management	Sustainable Work Systems
Occupational Health	Organizational Behaviour	
Work Stress	Job Design	

For example, strategic management and human resource management literature contains a focus on explaining variance in business success as a result of employment relational decisions (e.g. outsourcing) and HRM practices (e.g., performance-related pay) – often this happens against the backdrop of certain organizational contingencies. On the other hand, occupational health literature and research, to a large extent, focuses on explaining the variance in individual health as a consequence of subjective work demands and resources.

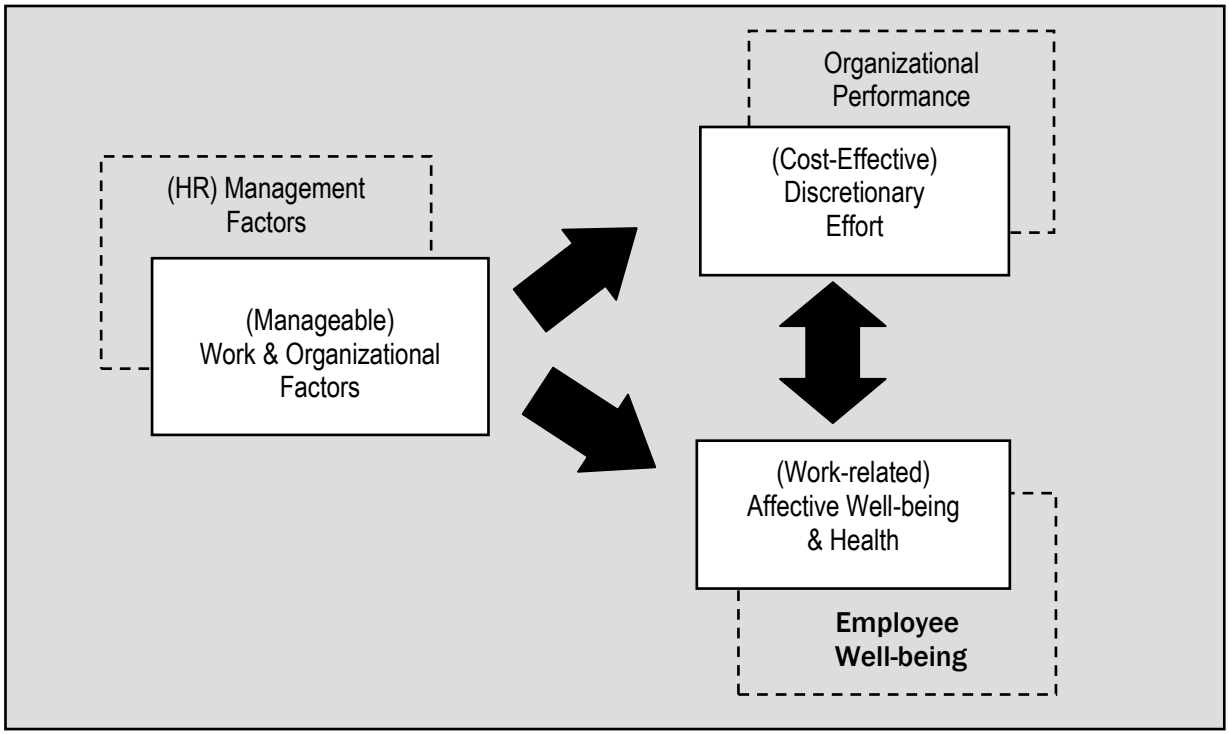


Figure 2-2: Specified Conceptual Building Blocks in this Chapter

As summarized in Figure 2-2, literature on the management of well-being and performance is broad and diverse due to its own specific criterion of interest, level of analysis and dominant theoretical frameworks. In order to review and compare a great deal of this literature, the next paragraphs will focus on those streams of literature which have concentrated on (manageable) work and organizational factors in relation to (cost-effective) discretionary employee effort and (work-related) affective well-being and health. In comparing the literature providing either an optimistic, pessimistic, sceptical or integrative perspective on the management of well-being and performance, theory and research findings at both the individual/employee level or the organizational/management level will be addressed.

2.3 OPTIMISTIC PERSPECTIVES ON THE MANAGEMENT OF WELL-BEING AND PERFORMANCE

By far, the majority of theories and research take an optimistic perspective on the management of well-being and performance. The alignment of employee and employer needs/interests and the assumption of "mutual gains" for both parties forms a long-lasting rationale underpinning work design and labour management theory and practice. Here, the simultaneous fulfilment of both employee and organizational needs would signify a successful pursuit of employee well-being *and* organizational performance. To an organization, employees as human assets are considered a special form of strategic assets, as they are 'human capital under limited organizational control that have the potential to generate economic rent' (Coff, 1997: 375). Employees are more complex to govern as they have their own needs that shape their work role behaviour. Ever since the notable scholars within the human relations tradition in the 1930s and its followers in the 1960s (e.g., Agryris, 1964; McGregor, 1964; Vroom, 1964, Herzberg, 1966)[2] put the social and psychological needs of individual employees on the management agenda, there is a fundamental debate on the way the fulfilment of these individual employee needs and interests within the workplace would relate to improved organizational efficiency and productivity. In the following sections, we will discuss the early thoughts on the

[2] Exemplary book titles are McGregor's *The Human Side of the Enterprise*, Agryris' *Integrating the Individual and the Organization* or Herzberg's *Work and the Nature of Man*.

optimistic approach to the management of well-being *and* performance and the continuity of these thoughts in different contemporary streams of literature.

2.3.1 Early Optimistic Thoughts: Principles of Labour Humanization

Originally triggered by a humanization of labour ideal, the humanistic plea for the enhancement of meaningful work, intrinsic work motivation and self-actualization at work attested against the rigid, standardized work systems which reduced human work to 'pure sensorimotor functions deprived from any intellectual activities' (Brödner & Forslin, 2002: 17). It set the tone for viewing human labour as a firm resource being fundamentally different from other firm resources (e.g., technology, production process), because the human resource cannot be separated from the *people* in whom it exists (Edwards, 2001: 2-3). At a societal level, Marxist theories for a long time embraced the notion that production capital and labour are distinct entities (the former can not revolt, the latter can!). Marx's problem with work systems that alienated labour by reducing human productivity to mere adaptation to (rather than control over) production machinery, was that it denies workers the possibility to freely develop their essentially human "mental and physical energies" (Whitfield & Poole, 1997). With regard to the work organization, human relations theorists concentrated on the work and organizational aspects affecting specifically the *human* resource within organizations. This lay the foundation for "personnel management" and later "human resource management" to evolve as a separate functional discipline within organizations (Brödner & Forslin, 2002). The human relations school's mission was to identify those work and organizational factors that would fulfil the employee's social and psychological needs that in turn would trigger the *intrinsic work motivation* as a driving psychological force to do a good job (Brödner & Forslin, 2002), something of which organizations would benefit in terms of better performance. With reference to Marx's problem with alienating work systems, it entails a focus on how freeing human mental and physical energies (as opposed to restricting it) could benefit both employer and employee. The now famous Hawthorne studies revealed the effect of giving (research) attention to people in a production-setting and the rise of productivity, caused by human/psychological processes rather than changes in production methods. In the words of Huzzard (2003: p.14):

> '[…] the Human Relations School asserted that where managers appreciated the humanistic needs of their workforces, workplace relations could be conceived in positive-sum terms, that is, improvements in human well-being contributed to firm performance rather than being a mere overhead that undermined profitability.'

2.3.2 Later Optimistic Models

In applying the assumptions following directly from the human relations movement, more specific job and management models arose that aimed at workplace interventions and testable research models at different levels of analysis.

The job characteristics model

In what was termed the "quality of work life movement" (Godard & Delenay, 2000: 485), the most influential model was the job redesign model or Job Characteristic Model (JCM, shown in Figure 2-3) by Hackman and Oldham (1980). The clear parallels with human relations assumptions can be found in the expected outcome domain of job redesign, which encompasses multiple outcomes such as improved job satisfaction, productivity as well as reduced employee turnover and sickness absence. With respect to the implications for work design, Hackman and Oldham (1980) distinguished three interrelated job, workplace organizational and managerial aspects, which synergistically would improve both employee well-being and organizational performance outcomes. Focussing on what Hackman and Oldham termed the *motivational potential* of jobs, the JCM theorizes that a combination of job enrichment (task variety, task identity, task significance), autonomy and feedback of results, would each produce "critical motivational-psychological states" of, respectively, experienced meaningfulness of work, experienced responsibility and knowledge of results of work activities. Further, the JCM suggests that these core motivating work characteristics would relate stronger to employee well-being and productivity when (1) individual employees attach importance to challenge and personal development (*high growth-need strength*), (2) when they possess the personal abilities to do the job (*skills and knowledge),* and (3) when employees feel that they are paid well, have a secure job and have a good relationship with their supervisor (*job contextual satisfaction*).

The JCM can be considered one of the first integrative approaches that conceptually underlined the human relations school's assumptions on the convergence of well-being and performance through the principles of labour humanization. First, it

viewed (the employee experience of) the job as a central construct separated from the nature of the production process in which it is performed. Second, it took intrinsic employee motivation as the core linking mechanism between work and organizational factors and well-being and performance outcomes. And third, it clearly assumed to be an approach to work organizational and managerial aspects of the job and individual employee characteristics, which in optimal conjunction would benefit both individual well-being and organizational goals. The technical-conceptual approach to study the different aspects of individual job/work experiences, employee needs and abilities, the organizational context and its organizational outcomes resulted in a large stream on empirical I/O psychological research (including laboratory studies) on the validity of the underlying assumptions and the various linkages within the model (see Parker et al., 2001; Parker & Wall, 1998 for an overview).

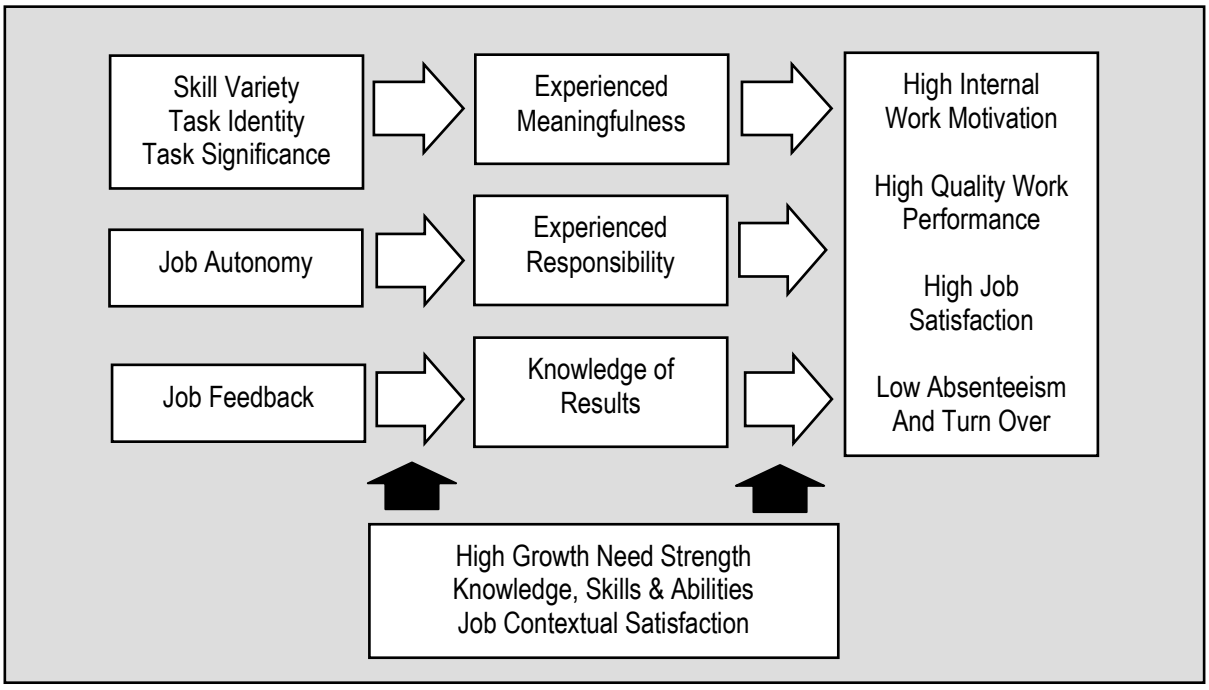


Figure 2-3: The Job Characteristics Model (JCM; Hackman & Oldham, 1975).

The high-commitment / involvement HRM model

To a great extent, it can be argued that the assumptions underlying the labour humanization tradition, of which the elements were further specified in the individual job-level JCM, have evolved into other comprehensive theoretical models

on relationships between labour management and organizational performance (Campion, Mumford, Morgeson & Nahrgang, 2005). For instance, more deeply rooted in the organizational-level Human Resource Management literature, Lawler's (1982; 1986) original notion of the *high involvement organization* or Walton's (1985) *high commitment management* both prescribe HRM models of a "developmental humanist" nature (see Legge, 2005) in comparison to "utilitarian-instrumental" high control HRM models (Arthur, 1994; Wood, 1996, 1999; Tsui, Pearce, Porter & Hite, 1995). The elevation of research on the performance effects of the humanization of work to the organizational level was further accelerated by the work of Jeffrey Pfeffer (1994). His prescription of (empirical) evidence-based "best" HRM practices that contribute to the attainment of "competitive advantage through people", set the tone for moving the perspective on labour management from a social, quality of work life agenda to an economic, business agenda. And again, the optimistic notion of a common set of factors that foster employee well-being *and* organizational performance is clearly assumed. Purcell (1999) on Pfeffer's work: 'Although a wealth of detail is provided, the unmistakable thrust of the analysis is that all firms can and should adopt a set of HRM practices for the combined benefit of the firm and its employees' (p. 26). Similarly, on the outcomes of high commitment models of HRM, Legge (2005) notes it prescribes 'job security, job design and employee development as the route to high productivity/profits *and* to high employee satisfaction/commitment' (p. 19).

Overall, the high commitment/involvement HRM literature does not seem to differ much from assumptions underlying the JCM. In Table 2-2 it is shown that Pfeffer's "best" HRM practices seem to tailor the motivational job characteristics in the JCM into coherent objects of organizational-level management *interventions*. In essence, the psychological work experiences and employee characteristics that the best HRM practices' seek to develop and enhance, strongly resemble the ones distinguished in the overall JCM. Delery and Shaw (2001) already acknowledge this link by stating:

> '[…] it appears that much of the S[trategic] HRM work is simply elevating this [Job Characteristics] model to the level of the organization or work unit and more directly focusing on the issue of knowledge, skills and abilities.' (p. 176).

Table 2-2: Correspondence between Job Characteristics domains and "Best" HRM domains

Model Elements	Job Characteristics Model	Pfeffer's "Best" HRM domains
Individual/ Personal Characteristics	Skills, Knowledge, Abilities	Selectivity in Recruiting Training and Skill Development
	Growth-need Strength	Promotion from within Long Term Perspective
Job/Work Organizational Characteristics	Job Enrichment (focus on "whole" tasks):*Task variety, Task significance, Task identity*	Employee Ownership Cross-utilization and Cross-training
	Autonomy/ Participation	Participation and Empowerment Self-managed Teams
	Feedback of Results	Incentive Pay Information Sharing
Employer/ Supervisor Characteristics	Job Contextual Satisfaction: *Pay-level, Job security, Supervisor support*	Employment Security High Wages Symbolic Egalitarianism Wage Compression

Sources: **Hackman & Oldham (1975) & Pfeffer (1994)**

However, other than the intrinsic motivational mechanism underlying linking affective well-being and performance, social exchange theory (Blau, 1964; Tsui, Pearce, Tripoli and Porter, 1997; Guest, 2002) is proposed as the theoretical mechanism linking HCHRM to performance. Here, through a set of consistent high commitment HRM practices, organizations invest in employee well-being and communicate a long term employment relationship to the employee. Exchange theory emphasizes the "norm of reciprocity" (Gouldner, 1960) through which employees feel obligated to respond equitably to the (long term) employer investments made in them. Therefore, within a commitment-based employment relationship, employees are assumed to reciprocate the investments made in their well-being by working harder and smarter in pursuit of organizational goals (Edwards & Wright, 2001; Whitener, 2001).

The job demands-control model

In reaction to job characteristics model, Karasek (1979) proposed to expand job characteristic theory by including job demands. This was based on empirical findings that employees in more demanding *and* enriched jobs reported better mental health and job satisfaction than employees in less demanding and enriched jobs. According to Karasek (1979), this reflects the notion that job demands (work load / time pressure) are "instigators of action", which place the individual in a motivated or energized state of stress. On the other hand, high levels of job control (job autonomy and skill use) would modulate the release or transformation of the potential energy into actual active work behaviour. Alternatively, in jobs where the job demands exceed the level of job control; instigated energy is left unreleased which may manifest itself as mental strain (fatigue, anxiety) or physical strain (high blood pressure). With a theoretical mechanism based on the interaction between job demands and job control, Karasek's Job Demands-Control model (JDC; see Figure 2-4) is assumed to predict two types of employee outcomes – ill health *and* productive behaviour (Karasek & Theorell, 1990; Mikkelsen, Øgaard, & Landsbergis, 2005).

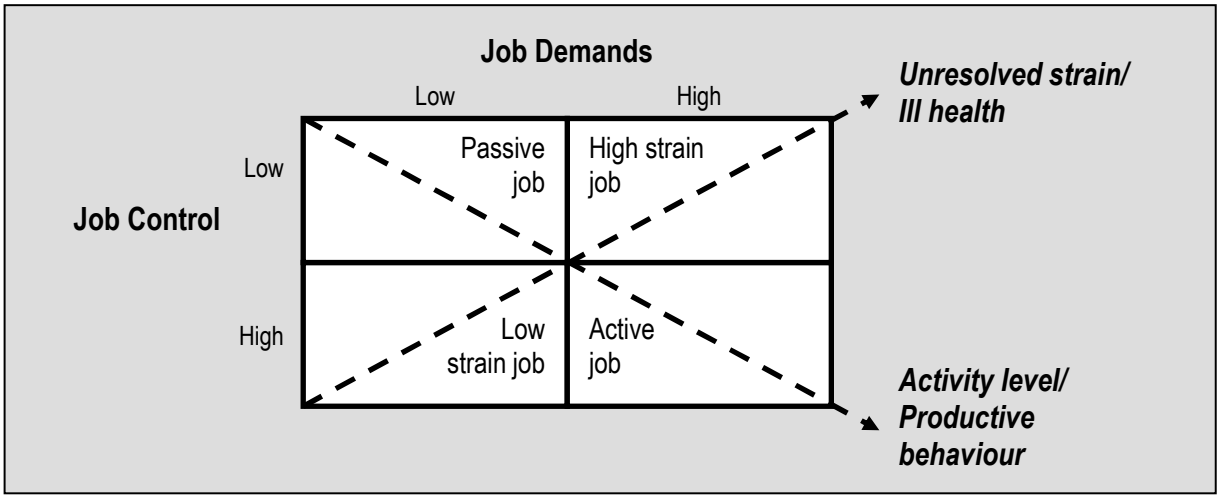


Figure 2-4: The Job Demands-Control Model (JDC; Karasek, 1979).

Besides providing employees with personal autonomy and skill variety, also other work and organizational factors have been argued to "buffer" the adverse employee health effects of high work demands. For instance, the person–environment fit approach to work stress (French et al., 1982; Kristof, 1996) emphasizes the importance

of the interaction between potentially stressful work situations and the personal abilities, skills and knowledge to meet the performance demands the job generates (demands-ability fit) in reducing mental strain. Additionally, Siegrist's (1996) effort-reward balance model emphasizes the importance of reciprocity in the relationship between high job demands/effort and rewards like money, esteem, job security or career opportunities. An effort-reward imbalance (doing more than rewarded for) is consistently found to relate to adverse psychological as well as physical health effects (see Van Veghel, de Jonge, Bosma & Schaufeli, 2005). Therefore, the individual-level literature on demand-control, demand-ability and effort/demand-reward balances depicts the individual employee's opportunity to deal with performance demands (like high work loads or time pressure) without causing unhealthy job strain. As such, the broader facets of job enrichment underlying the job characteristics model would simultaneously prevent job strain effects and enhance performance outcomes in the case of high workload. Therefore, the JDC model relates to an optimistic approach to the management of well-being *and* performance as it provides a rationale for how productive employee behaviour can be enhanced while simultaneously job strain is reduced.

2.4 Pessimistic Perspectives on the Management of Well-being and Performance

While the influential optimistic theoretical stances assume the possibility of a common ground for enhancing affective employee well-being *and* organizational performance while also reducing job strain, *pessimistic* approaches are less convinced of the possibility of mutual gains. A pessimistic or critical approach entails that the pursuit of high organizational performance is not always compatible with employee interests and well-being (Peccei, 2004). Central to a pessimistic approach is the acknowledgement of "trade-offs" between enhancing performance and well-being outcomes. Two streams of literature that acknowledge these tradeoffs in the management of employees are explicitly addressed. They are discussed below.

Interdisciplinary work design framework

Campion's (1988; Campion & Thayer, 1987) interdisciplinary framework of work design integrates work design approaches from multiple disciplines including organizational psychology, industrial engineering, biomechanics and ergonomics.

Table 2-3 shows how Campion's framework compares the costs and benefits of four mono-disciplinary views on the nature of work and the consequences for employees and organizations. When specifically focusing on the mechanistic versus the motivational model, it is striking that the motivational model (that closely resembles Hackman and Oldham's job characteristics model; Morgeson & Campion, 2002) benefits employee motivation and customer service while also carrying the costs of more employee stress. Although motivational job designs fulfil basic intrinsic motivational needs, enriched jobs are also more vulnerable to ambiguity, competing demands and the lack of clear job boundaries, which can evoke stressful difficulties in comprehending and self-managing one's work (Docherty et al., 2002).

Table 2-3: Interdisciplinary Perspective on Job design (Campion et al. 2005: 369)

Model / Discipline	Illustrative Recommendations	Typical Benefits	Typical Costs
Mechanistic model *(Industrial Engineering)*	Specialization Simplification Repetition	Efficiency Easier staffing Reduced Training	Decreased Satisfaction Decreased Motivation
Motivational model *(Organizational Psychology)*	Variety Autonomy Participation	Satisfaction Intrinsic Motivation Retention Customer Service	Training Errors Stress
Perceptual model *(Human Factors; Experimental Psychology)*	Reduce information-processing requirements	Reduced Errors Fewer accidents Less mental overload	Boredom Monotony
Biological model *(Ergonomics; Medical Sciences)*	Reduce Physical requirements Reduce environmental stressors	Physical comfort Reduced physical stress Reduced fatigue	Financial costs Inactivity

On the other hand, the (Tayloristic) mechanistic model of work design would increase operational efficiency, but decrease employee satisfaction and motivation. These tradeoffs between well-being and performance contradict the assumptions of

the optimistic models. Morgeson and Campion (2002) note that these tradeoffs have only recently been acknowledged, partly because of the 'relatively parochial nature of work design research in I/O psychology' (p. 590). So far, empirical research comparing the outcomes of different work design models shows that a motivational work model relates to higher satisfaction *and* higher job demands plus negative correlations with efficiency outcomes (Campion, 1988; Campion & McClelland, 1991; Edwards, Scully & Brtek, 2000). Otherwise, the mechanistic model is found to increase efficiency and operational reliability while strongly diminishing employee satisfaction (Campion, 1988; Edwards & Wright, 2001). In the eyes of Campion and colleagues, tradeoffs between well-being and performance outcomes of work are structurally inevitable - a stance that contests the win-win assumptions underlying the optimistic models. Therefore, recent studies (Morgeson et al., 2002; Campion et al., 2005) have begun to examine the possibility of *reducing* inevitable well-being-performance tradeoffs, rather than *maximizing* the well-being *and* performance outcomes of work.

Labour process theory

Just like Campion and colleagues contest the solely beneficiary well-being and performance outcomes of motivational job design, labour process theorists in industrial relations literature address the theoretical drawbacks of high commitment/involvement HRM and the proposed "mutual gains" for employer and employee. With a stronger focus on organizational-political and managerial factors that impact employee and organizational outcomes, labour process theory builds on the pessimistic stance that management and labour inherently have conflicting interests which create trade-offs. Based on labour process theory, the adoption of new types of labour management practices would reflect a modern managerial control strategy to maximize labour inputs through labour process or *work intensification* (Ramsay et al., 2000; Godard & Delaney 2000; Godard, 2001; White et al. 2003). The work intensification-thesis stresses that HCHRM practices serve the intrinsic management goal to obtain maximum employee effort via "management by stress" (Delbridge and Turnbull, 1992). Other than a Tayloristic situation in which management and machinery control and dictate the pace of work (Bélanger et al., 2002), HCHRM practices would create a situation in which committed employees dictate themselves and monitor each other into expending high levels of effort ("concertive control"; Barker, 1993). A situation that can emerge via, on the one hand

setting high performance demands and organizing internal competition, but on the other hand providing employees with the benefits, career opportunities and discretion through which they will *comply* with high levels of work demands (Harley, 1995 in Ramsay et al., 2000). This would lead employees to accept an increase in job demands in order to boost productivity levels. In this "rat race" view on labour management, the seemingly paradoxical situation emerges in which employees are satisfied and committed, but also report job fatigue and psychological complaints (anxiety, depression) that result from self-inflicted stress. As such, the political-economical labour process theory predicts that commitment-based employment relationships could "trick" employees into accepting higher job demands that would lead to more labour performance (output) but also to adverse health effects. Substantial evidence for a systematic intensification effect of new labour management practices is scarce, although Green (2004), White et al. (2003) and Gallie et al. (1998) report some evidence from British studies. Whether or not work intensification would be a deliberate management strategy or an emerging outcome of work in a contemporary market context is not clear. Nevertheless, the research on the substantial health risks following from employee "overcommitment", "workaholism" (Van Vegchel et al., 2005; Taris, Schaufeli & Verhoeven, 2005) or a "golden cage syndrome"[3] (Schabracq & Winnubst, 1996), all refer to outcomes of an employment relationship which excessively overcommits employees to their work and organization.

2.5 Sceptical Perspectives on the Management of Well-being and Performance

Where the optimistic and pessimistic approaches to the management of well-being and performance assume certain similar underlying mechanisms that would predict either win-win or win-lose outcomes of work, sceptical approaches do not assume that well-being and performance outcomes are part of the same "game" per se. In other words, possibly, different work and organizational factors independently affect well-being and organizational performance outcomes. Also here, approaches at the work design and the organizational level can be distinguished.

[3] The "golden cage syndrome" refers to a phenomenon in which employees have made secure pay advancements up to a point they cannot earn the same salary elsewhere. Together with a decrease in their career possibilities they grow old in their well paid and secure jobs while running the risk that the job will not appeal to them (any longer).

Twin-track model of job redesign

In testing the well-being and performance outcomes of Hackman and Oldham's job redesign framework, Kelly (1992) found differential results for work design factors that relate to employee job satisfaction and performance. As satisfaction was more influenced by employee perceptions of job enrichment, work performance was more strongly an outcome of managerial practices like pay rises, tighter staffing and goal setting. Consequently, Kelly proposed a twin-track model of job redesign (see figure 2-5) which acknowledges the analytical distinction between determinants of affective well-being (job satisfaction) and performance. Therefore, this model also distinguishes itself from Campion's approach as it does not assume a trade-off between well-being and performance. Kelly's "sceptical" findings are based on a meta-analysis including 31 methodologically rigorous case studies and experiments.

They showed only limited support for the proposed common mechanism of the JC-model explaining both job performance and job satisfaction. Predictors of work performance were not to be found in the typical job characteristic-dimensions, but in the pay rises and job losses that were found to be associated with the job redesign. What Kelly (1992) concludes is that Hackman and Oldham's job characteristics are likely to satisfy employees, but are in themselves unlikely to motivate towards higher performance. From Kelly's analysis it can be concluded that job satisfaction and job performance do not share the same determinants per se. Additionally, Kelly (1992) argues that his proposed "twin-track" mechanism of job satisfaction and performance is consistent with a large body of evidence showing only a small, positive relationship between job satisfaction and job performance; a finding that still holds today (Iaffaldano & Muchinksy, 1985; Fisher, 2003; Judge, Thoresen, Bono and Patton, 2001). While satisfaction can be explained by factors within the structural design of the job and work organization, one of the driving forces behind job performance is supposedly situated within the economic (and social) exchange between employee and employer.

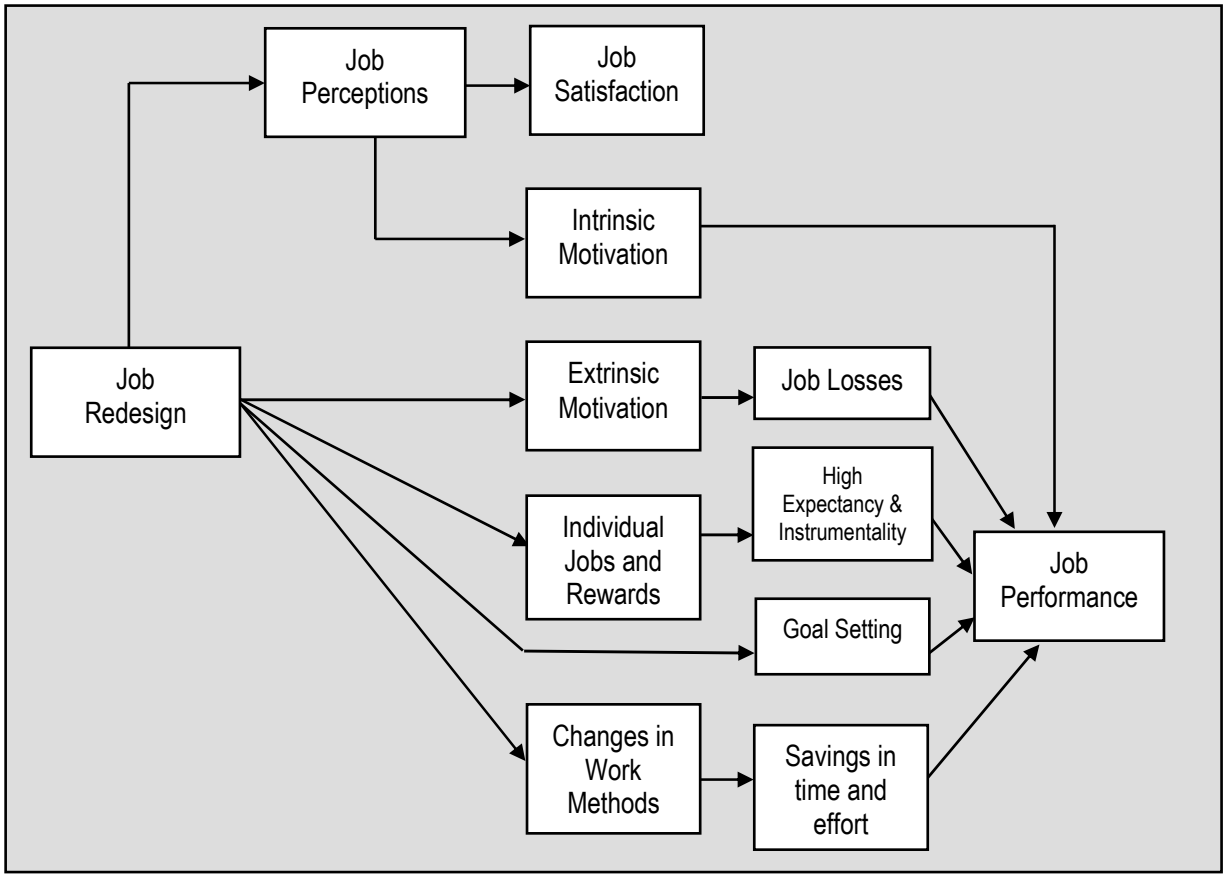


Figure 2-5: Kelly's Twin-Track Model of Job Redesign (Kelly, 1992)

Despite its rigorous approach and provocative outcomes Kelly's findings did not lead to a great deal of followers in the work design literature, although his findings do connect to the organizational-level High Performance Work Systems literature (e.g., Appelbaum et al., 2000; Delery & Shaw, 2001) discussed in the next paragraph.

High performance work systems and the resource-based view

Sceptical models can also be found in the High Performance Work Systems (HPWS) literature. Although the term High Performance Work Systems HPWPs is often used interchangeably with the optimistic High Commitment/ Involvement HRM models (Boxall & Purcell, 2003), there is a difference with regard to the theoretical centrality of employee well-being in explaining between-organizational performance differences. One of the leading scholars in this field, Eileen Appelbaum, clarifies this distinction by stating:

> 'Unlike past attempts to humanize work or improve the quality of work life, these [HPW] practices are not designed with the goal of increasing worker control or autonomy or job satisfaction. Whether these practices result in such worker outcomes is an empirical question, but achieving these outcomes is not management's primary motive'((Appelbaum, 2002; p. 121).

Where job redesign and high commitment HRM literature has explicitly put the fulfilment of psychological and social employee needs central to a common mechanism through which both employee well-being and organizational performance are affected – HPWS literature focuses more explicitly on the needs of an organization to remain competitive. These strategic organizational needs are embedded in one of the leading theoretical frameworks in strategic management literature: the *resource-based view of the firm* (RBV; Barney, 1991). The RBV, applied to human resources, states that to the extent that resources are rare, valuable, inimitable and non-substitutable they can become sources of sustainable competitive advantage (Barney, 1991; Wright, Dunford & Snell, 2001). Here, it is argued that to the backdrop of market context and strategy, organizations need a unique set of employee skills, attitudes and behaviour which cannot be easily copied by competitors (Wright & McMahan, 1994). The RBV provides an organizational-level rationale on how the organization's human capital pool would contribute organizational competitiveness (Delery & Shaw, 2001). As human capital originally is defined in terms of employee educational/skill levels (Becker, 1964), Wright et al. (2001) state that an organization's highly skilled/talented *and* highly motivated workforce has a greater potential to constitute a source of competitive advantage. Especially with regard to human resources as employee skills, attitudes and behaviours it is recognized that organizations differ to the extent that they know to attract, develop and retain talented and skilled employees. They also differ in the extent they are able to develop and stimulate certain employee attitudes and work behaviours that are of direct value to the organization (discretionary effort).

Much more than the acknowledgement that labour is a distinctive resource (among other resources) that, when satisfied, committed and free of job strain are more likely contribute to organizational goals, the RBV theorizes on *what* type of workforce characteristics could be distinctive and valuable to organizations in their specific line of business or organizational context. In other words, what exactly constitutes an organization's *human resource advantage* (Boxall, 1996; Boxall & Purcell, 2003)? Figure

2-6 shows Delery and Shaw's (2001) human capital model of the relationship between management (HPWS) and organizational performance.

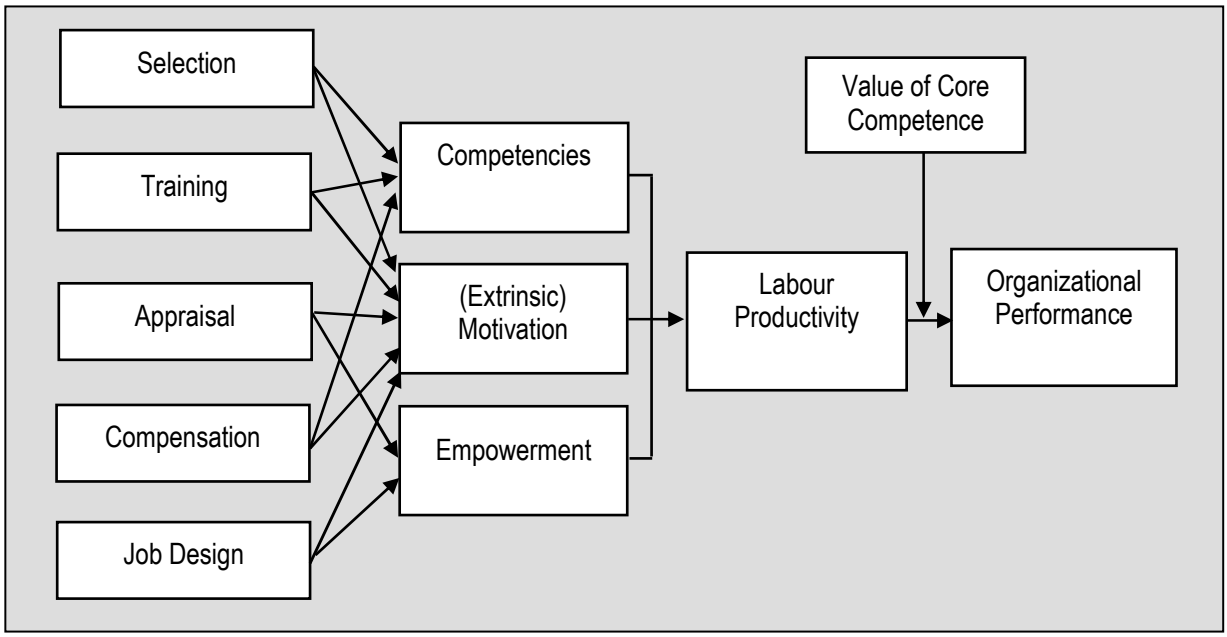


Figure 2-6: Human Capital Model of HRM - Firm Performance (Delery & Shaw, 2001; p. 174)

The model depicts a range of HRM practices (selection, training etc.) that contribute to the development of the workforce conditions (competencies, extrinsic motivation and empowerment) to be productive. Notice that the job design factor, similar to Kelly's (1992) twin-track model, is now just one element among other HRM practices. Furthermore, as the RBV assumes, for labour productivity to be cost-effective, the employee discretionary effort needs be of value to the organization's core competence that ensures organizational competitiveness. But what about employee well-being?

In studies applying the RBV to the human resources domain, employee well-being is not explicitly considered to be a strategic asset. Similar to the assumptions with regard to labour humanization and high commitment models of HRM, the RBV theorizes on when and why distinctive human resources would contribute to sustained organizational performance. However, rather than putting employee well-being at the heart of this relationship, it focuses on the organization's need for employee discretionary effort as a source of organizational competitiveness. Based

on the British WERS98 data from 1250 workplaces and 23000 employees, a study by Peccei (2004) on the HRM practices that do positively relate to employee well-being the findings support a sceptical approach. Peccei's results suggest that the set of HR practices that help to maximize employee well-being are not those practices that make up supposedly more highly effective high performance work systems. As a consequence it was questioned whether "happy" workplaces are also likely to be economically viable. Similar to Kelly's (1992) findings this would indicate that employee well-being and organizational performance do not share the same determinants. Alternatively, Coff (1997) does take into account employee well-being as part of the RBV framework, by stating that the 'firm's [human] assets walk out the door each day; leaving some questions about whether they will return' (p. 375). From this perspective, looking after employee needs and interests prevents the turnover of those human resources that are rare and valuable to organizations. This posits that fostering employee well-being is of indirect importance to maintain high levels of organizational performance; but is more directly related to the reduction of employee turn over. The direct relationship of employee well-being with employee turn over rather than with organizational performance has also been noted by other authors (Guest, 2002; Purcell, Kinnie, Hutchinson, Rayton & Swart, 2003).

2.6 Integrative Perspectives on the Management of Well-being *and* Performance

Last, integrative models with regard to the management of well-being and performance explicitly merge the rationales underlying well-being and performance processes. The difference with the optimistic approach is consideration of both social employee and economic organizational needs with equal weight. Although integrative models support the possibility of the mutual gains for employee and employer, they take a step further by assuming that organizational performance cannot go without employee well-being and vice versa. The proposed dynamics between employee well-being and organizational performance is central to two integrative models. They are discussed below.

Organizational health

Organizational health encompasses an integrative approach to well-being and performance issues, which originally has been instigated by job stress scholars (Cox,

1988; Murphy & Cooper, 2000; Hart & Cooper, 2001; Hofmann & Tetrick, 2003). Hart et al. (2001) state that one of the main reasons for the further development of the concept of health in organizations are the limitations of traditional individual level stress theories. These theories have, for instance, broadened from the work to the relationships or spillovers with the non-work domain, rather than being 'integrally linked to the ongoing viability and profitability of work organizations' (p. 99). Consequently, the organizational health framework emphasizes the need to simultaneously focus on employee well-being and the organization's "bottom-line". As Hart et al. (2001) state:

> 'A fundamental requirement for most organizations that wish to improve their 'bottom-line', is the need to develop appropriate structures and processes that will reduce occupational stress and, at the same time, enhance employee satisfaction and performance. […] the organizational health perspective recognizes the fact that having satisfied and happy people is of little value to an organization unless employee are also performing efficiently and productively. Likewise, having an efficient and productive organization is of little value if this is achieved at the expense of employee well-being' (p. 99).

Figure 2-7 shows the dynamics underlying the organizational health approach. The thicker arrows in the figure depict the main organizational health processes. The crux is that the dynamic interplay between individual employees and their work organizational environment affects employee well-being which in turn contributes to organizational performance. However, the model also assumes that individual and organizational characteristics have a direct link with organizational performance, which integrates some of the sceptical elements as discussed above.

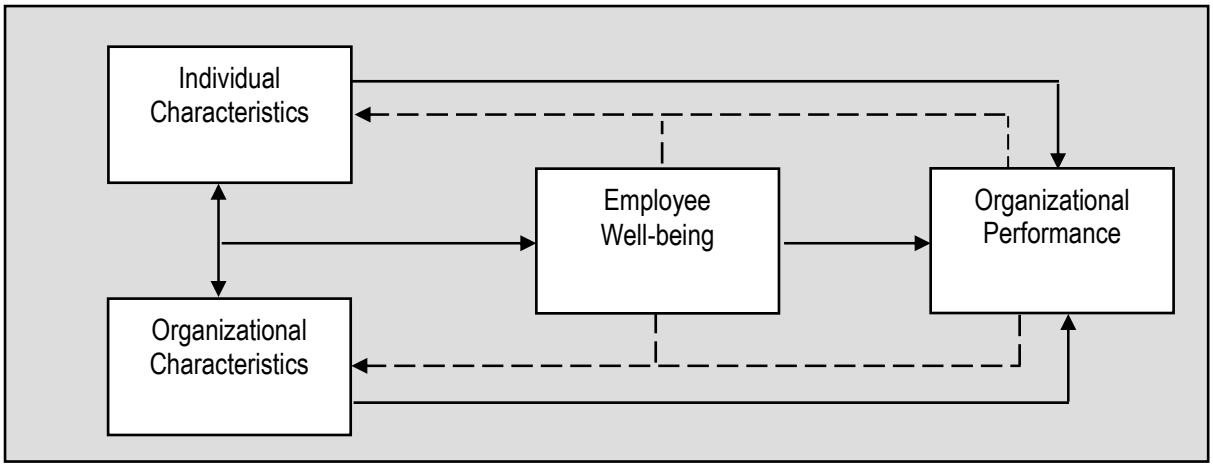


Figure 2-7: Organizational Health Model (Hart & Cooper, 2001; Griffin et al., 2000)

Further, the dotted lines in the model represent feedback loops that indicate that, reciprocally, organizational performance also can affect individual and organizational perceptions and circumstances. To some extent, this also leaves room for pessimistic stances while mechanistic organizational characteristics can directly boost organizational performance in such way that it triggers organizations to adopt further efficiency in the future with a risk of a decrease in employee well-being. The extent to which individual employees can cope with strongly efficient future processes would determine the viability of the organizational unit under study. Viewing organizational health as a dynamic rather than a static outcome of work and organizational factors means that employee well-being and performance are entwined and affect each other over time. Interestingly, in earlier work of Karasek and Theorell (1990) these well-being-performance dynamics were already addressed, but hardly further integrated in empirical research (see Taris (2007) for a discussion). All in all, organizational health research points to the examination of how organizations can constantly keep their processes and employees in "shape" in order to deliver endurable performance. This issue connects to the recent literature on sustainable work systems, which will be discussed next.

Sustainable work systems

Sustainable work systems (SWS) literature (e.g., Docherty et al., 2002) takes the increased complexity of modern day jobs as a starting point for discussing how this intensifies contemporary work and what underlying processes might improve sustainability of new work organizations. Sustainable work systems are positioned opposite to intensive work systems in which there is a dyadic misfit between personal and situational characteristics (Moldaschl in Van Eijnatten, 2000). In such an intensive work system, human resources (e.g. skills, health, trust) are consumed rather than regenerated. In comparison to the overconsumption of natural resources like oil, also the organization's human resources can get exhausted. This could result in, for instance, unbridgeable knowledge gaps, irreversible health damage or non-restorable trust. But how to be sustainable as an organization? In reaction to the fast shrinking world oil supply, one can develop machines that are economical in the use of oil or one can switch to other energy resources. In reaction to the overconsumption of human resources, switches to the automation or computerization of certain unhealthy and heavy work processes have certainly contributed to the prevention of human resources exhaustion. However, new threats to the human resource in

organizations are less a consequence of unhealthy, stable work structures and methods, but rather a consequence of increasing flexibility accompanied by insecurities and contradictory work demands (Brödner & Forslin, 2002). Like switching from finite oil resources to infinitive energy sources (e.g., wind, water, biomass), sustainable work systems literature encourages to take a similar approach to *human* resources. Sustainable work systems are characterized by "building the future into the present" (Evans, 1999). This means that in the process of the deployment of human resources towards performance they simultaneously get reproduced to guarantee both short-term organizational competitiveness *and* employee well-being without compromising future performance and employee well-being. Similar to the organizational health perspective, great emphasis is placed on well-being and performance as a dynamic outcome of work, as they influence each other over time. Typical sustainable work practices are, for instance, life-long learning and employability programs as they specifically aim at the continuous reproduction of new skills and knowledge in order to prevent skill exhaustion in the future. On the other hand, the reproduction of work-related employee health and affective well-being can be caught in, for example, age and/or life span specific policies and practices which provide the opportunity to healthily continue working at a higher age or through different life stages. Finally, it must be remarked, that these issues appear to receive more attention in a European context than in Anglo-Saxon countries.

2.7 TOWARDS A COMMON GROUND FOR THE MANAGEMENT OF WELL-BEING *AND* PERFORMANCE?

The categorization of a multitude of theoretical models and several streams of literature above, shows the importance but at the same time diversity in the approaches to the management of well-being *and* performance. As summarized in Table 2-4, there is an ongoing interest in knowing whether and/or how organizations can foster a common ground for improving well-being and (organizational) performance. However, the competing assumptions underlying, in particular, optimistic, pessimistic and sceptical models indicates the difficulties in drawing general conclusions on what could benefit "profit *and* people". The recent attention for integrative approaches like organizational health and sustainable work systems seem to further emphasize that decades of research on well-being-performance

improvement has been unsatisfactorily able to paint a coherent picture of how organizations can simultaneously improve their performance and employee affective well-being and reduce job strain.

Table 2-4: Summary of well-being – performance approaches

Theoretical Approach	Basic Assumptions Well-being-Performance relationship	Theoretical Models/ Streams	Core Authors
Optimistic Approach	The fulfilment of psychological and social employee needs leads to the well-being and intrinsic motivation to contribute to organizational performance. Employer and employee mutually gain from employee need satisfaction"	Job Characteristics Model Job Demands-Control Model High Commitment HRM High Involvement HRM	Hackman & Oldham (1980) Karasek (1979) Walton (1985) Lawler (1986) Pfeffer (1994)
Pessimistic Approach	There is a trade off in the maximisation of employee well-being *and* organizational performance. Efficiency comes at the expense of job satisfaction just like unhealthy work intensification is the price for job enrichment.	Interdisciplinary Work Design Labour Process Theory Work Intensification	Campion (1988) Ramsey et al. (2000) Green (2000)
Sceptical Approach	Organizational performance and employee well-being do not share the same determinants per se. Different work and organizational determinants affect well-being and performance. Whether organizational performance comes at the expense of employee well-being is an empirical question.	Twin-Track Model of Work Design High Performance Work Systems Resource-Based View of the Firm	Kelly (1992) Appelbaum et al. (2000) Barney (1990)
Integrative Approach	Although high organizational performance can be a direct short-term outcome of work and organizational factors, the extent to which organizational performance is endurable depends on a sufficient regeneration of human resources as opposed to the consumption of human resource well-being. A sustainable work system deploys *and* reproduces human resources. Well-being and performance influence each other over time.	Organizational Health Sustainable Work Systems	Hart & Cooper (2001) Docherty et al. (2002)

2.7.1 Possible reasons for differentiation in theoretical approaches

The summary in Table 2-4 of the categorization of different theoretical models and approaches to the management of well-being and performance shows the somewhat intriguing complexity of the issue. In order to identify the aspects of a common ground well-being and performance improvement, five possible reasons for the differentiation in theoretical assumptions and research findings are described below.

Reason #1: Misspecifications of well-being and performance

The first reason why models might fundamentally differ are the differences in the specification of the well-being and performance outcomes. In the beginning of this chapter, performance was defined as cost-effective discretionary effort as an indicator of labour productivity. However, when looking at the Job Characteristics Model, also the reduction of employee turnover and sickness absence are included. As a consequence, the rationale underlying the well-being-performance link becomes the reduction of employee turn over–related costs (for instance, in the case of W/O factors promoting employee satisfaction/commitment) and the reduction of sickness absence–related costs (for instance, in the case of W/O factors reducing employee job strain). The costs stemming from employee *un*well-being (e.g., recruitment costs, temporary replacement costs, costs due to pay for unproductive sick employees, back-to-work trajectory costs) are likely to affect an overall loss of productivity (Danna & Griffin, 1999). Inversely, this makes that "good" W/O factors relate to a reduction of productivity losses. However, management based on the prevention of productivity losses would signify a cost-minimisation approach to labour productivity, which would *not* explain how organizations could improve its workforce's effective discretionary effort (Boxall & Purcell, 2003). Furthermore, the models differ in their conceptualizations of employee well-being. In some models the focus is on affective well-being (e.g., high commitment model, twin-track model), in other models employee well-being is more job strain related (e.g., job demands-control model) and in some models both aspects of work related well-being are addressed (e.g., organizational health model). We consider both well-being aspects to be important, although they cannot be regarded to be similar concepts with similar antecedents (Warr, 1990; Schaufeli & Bakker, 2004). Therefore, making a clear distinction between affective well-being and work-related health and between cost-effective performance and cost-minimisation is likely to serve a better understanding of well-being *and* performance improvement.

Reason #2: The disregard of (changing) organizational needs

A second reason is the disregard of changing organizational needs. As described, job redesign and high commitment HRM literature have explicitly put the individual employee's psychological and social needs central to the management of well-being and performance. However, from a sceptical point of view, the fulfilment of employee needs might only affect employee well-being and not contribute to the expenditure of cost-effective discretionary effort. In other words, the optimistic models largely disregard the organizational needs when it comes to their human resources. As described earlier, the resource–based view of the firm (RBV) does take into account these organizational needs that provide competitive human resource advantages. In identifying the human capital pool characteristics that would elicit these human resource advantages, a behavioural perspective on strategic human resources (Jackson & Schuler, 1995) argues that the needed skills/work role behaviours should fit given organizational contingencies such as strategy, technology, customers and the like. This means that different organizational strategies require different employee behaviours in order to be successfully executed.

However, as the contemporary organization's market context is in constant flux, the performance effects of a fit between strategy and employee behaviour is increasingly contested. Therefore, recent attention has focused on the "dynamic capabilities" an organization should possess to survive in increasing dynamic and insecure organizational environments (Teece, Pisano & Schuen, 1997; Volberda, 1996). In increasing unstable organizational contexts, organizations can no longer rely on "betting" on one dominant strategy, but have to remain flexible or agile (Dyer & Schafer, 1999; Paauwe, 2004) to effectively respond to and cope with external (labour) market, institutional or technological changes. In this context, discretionary effort that is rare and valuable is possibly reflected in proactive employees that, for instance, show high levels of personal initiative, have a continuous learning orientation, know how to effectively cooperate/communicate and feel responsible for issues and problems outside of the traditional work context (Ilgen & Pulakos, 1999; Dyer & Schafer, 1999; Frese & Fay, 2001; Parker, 2000; Beltrán-Martín, Roca-Puig, Escrig-Tena, Bou-Llusar, 2008). Overall, the disregard of the exact type of discretionary behaviours that would constitute human resource advantage obstructs researchers to make sense of a common set of factors promoting well-being *and* organizational performance in a contemporary work context.

Reason #3: The causal link between well-being and performance

Another difference between the models is the assumed causal direction between employee well-being and performance. A large body of individual level research has addressed the causal relationship of greater employee well-being leading to higher employee job performance. Research on this happy/committed-productive worker thesis (Judge et al. 2000; Meyer & Allen in Guest, 2002) has, however, not generated convincing evidence that indicates that highly satisfied/committed employees perform better. In line with the sceptical approaches, Kelly (1992) and Guest (2002) call into question whether W/O factors can affect performance through well-being and, consequently, whether they share a common set of determinants or not. Otherwise, the pessimistic approach argues that well-being and performance effects are simultaneous outcomes of work rather than that there is a sequential relationship between the two. As such, well-being can be diminished in the pursuit of high performance (by excessive effort expenditure).

In a similar vein, Campion et al. (2005) also argue that high performance can be undermined in the organization's pursuit of employee well-being. In the integrative approach, much more attention is given to the reciprocal nature of the well-being–performance relationship. In other words, well-being and performance can affect each other in both directions. Here, learning processes enhance the knowledge to perform well and efficiently, which saves time and energy for the next time. Also, the alterations (like investments) in the work processes as a consequence of high organizational performance might positively affect employee well-being. In this sustainable view, well-being and performance are dynamically entwined over time. Findings in longitudinal studies already reveal that enhanced organizational performance can precede improved affective employees well-being. For instance, Schneider, Hanges, Smith and Salvaggio (2003) find overall job satisfaction to flow more strongly from financial and market performance than the other way around. Similar results were found by Ryan, Schmit & Johnson (1996) and Koys (2001) for customer satisfaction explaining employee satisfaction rather than the other way around. Interestingly, Koys (2001) found that organizational citizenship behaviour (OCB; Organ, 1988), as a form of discretionary effort (Podsakoff, MacKenzie, Paine & Bacharach, 2000), predicted profitability and not the other way around. All in all, these findings do *not* support a perspective in which the investment in employee well-being would directly and prospectively be related to better work performance.

Reason #4: Lack of specification of differences between W/O factors

When addressing the organization and management of well-being *and* performance, the assumption is that organizations can intervene by choosing for and investing in certain work and organizational factors or practices. However, the employee and organizational outcomes of W/O interventions cannot be studied in isolation as they are all in place at the same time, which makes that employees are exposed to them at the same time (Lepak, Takeuchi, Erhardt and Colakoglu, 2006). As both job enrichment models and high commitment HRM models assume some sort of combined effect of multiple W/O interventions towards employee well-being and performance, each of these interventions can be of a different nature. For instance, Kelly's (1992) findings that job redesign factors can have a differential impact on job satisfaction (job enrichment) and work performance (tight staffing, goal setting, pay levels) shows the possibility that W/O interventions differ in the outcomes they elicit. In a similar vein, Tsui et al. (1997) distinguish between interventions that emphasize short-term employee contributions (appraisal, goal setting and functional training) and long-term oriented employer inducements (career support, internal staffing and employment security).

The different nature of W/O interventions and possible differential impact on employee outcomes has also been recognized in Herzberg's (1966) *Two Factor Theory*. Here, Herzberg differentiates between W/O factors that either could motivate employees (e.g., promotion and developmental opportunities, job autonomy), while "hygiene" factors are only able to prevent employees from getting dissatisfied (salary, labour conditions, internal social relationships). Different categorisations of W/O factors can explain different outcomes, which makes it important to carefully examine those combined interventions that affect more well-being related outcomes and those that would relate to performance related outcomes. In order to understand how a common set of W/O could foster both well-being and performance outcomes, a more exact examination of the nature and W/O and possible outcomes of different W/O interventions is of importance.

Reason #5: The lack a specification of how W/O factors interact

Related to the previous point are the different ways research has gone about the interactions between different W/O factors. For instance, at the job level, the job characteristics model distinguishes between job enlarging elements (e.g. task variety) and job enriching elements (e.g., autonomy, participation). Consequently, a job containing the first without the latter could just mean that one has more different things to do, but under the restriction that an employee does not have any control over how to manage the execution of a variety of tasks. In combination these characteristics have beneficial outcomes for the employee, but in absence of job enriching elements it has no or less beneficial outcomes. This stretches the importance of the interaction between W/O factors. The same accounts for organizational practices which can form "powerful connections" as well as "deadly combinations" (Becker, Huselid, Pickus & Spratt, 1997) also with regard to well-being and performance outcomes. For instance, Delery (1998) notes that investing in training and development programs without ensuring that pay-levels are competitive, organizations run the risk that the training/development investments will probably not pay off when employees would choose to leave the organization for higher pay elsewhere. Regarding W/O factors as isolated factors that each contribute to certain well-being and/or performance outcomes may blur the picture of how a set of W/O factors can impact well-being *and* performance. Therefore, more specification on the possible interactions and their either beneficial or detrimental effects on well-being and performance is needed.

2.8 A RESEARCH FRAMEWORK AND NEXT CHAPTER

Taken together, the different approaches and underlying models do not nicely paint an easy picture of how to examine the possibility for organizations to promote performance, while sustaining employee well-being. But by reviewing the models and their underlying assumptions and discussing the possible reasons for their differences, Figure 2-8 presents an integrative research framework containing conceptual building blocks, linkages and the questions remaining. As shown in Figure 2-8, the integrative research framework builds on the High Performance Work Systems literature (Appelbaum et al, 2000), which assumes an effect of a system of work practices that in interaction with each other lead to high organizational performance through effective discretionary employee effort.

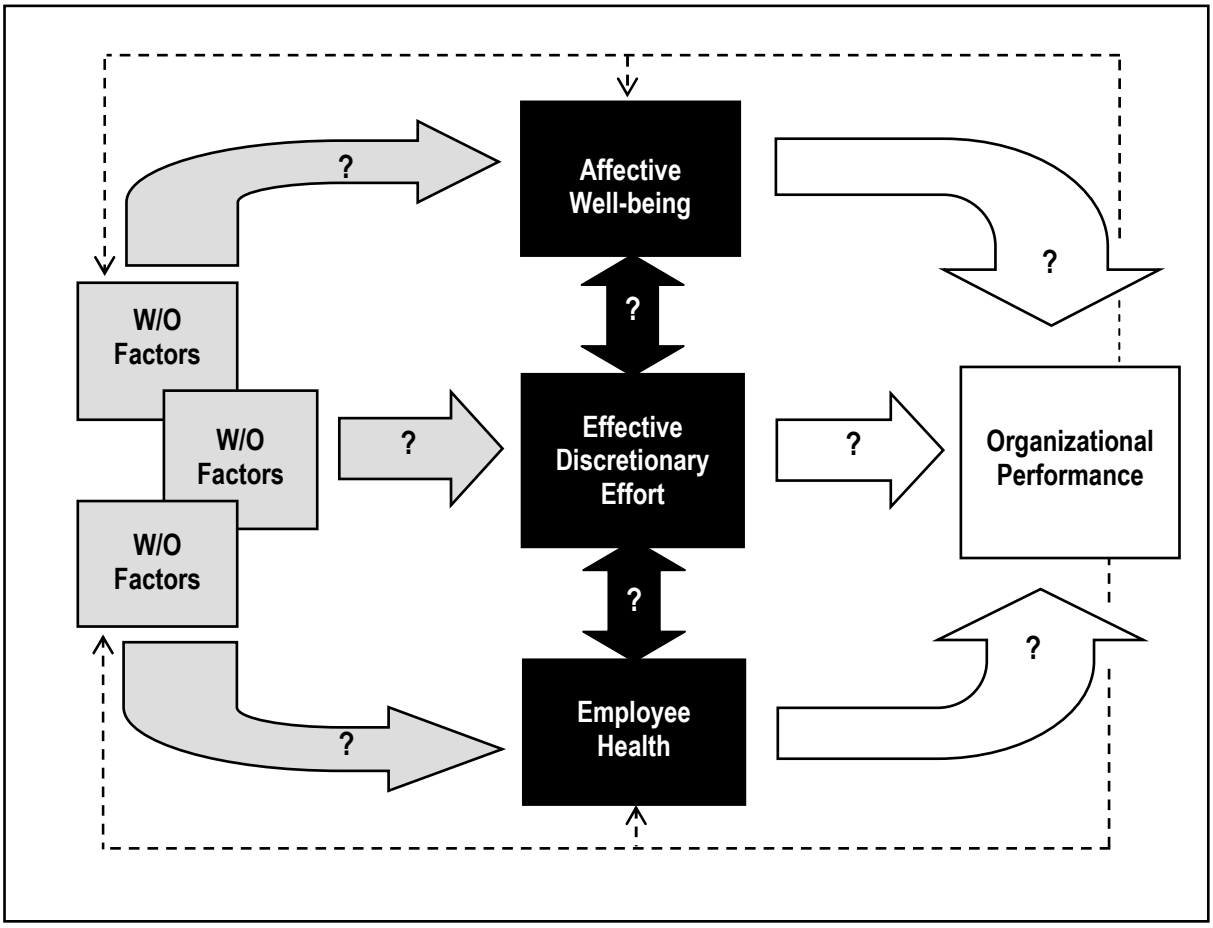


Figure 2-8: Integrative Research Framework and Questions Remaining

But other than the idea that employee well-being is considered an empirical side effect, the framework seeks to integrate employee well-being in the HPWS-Performance linkage. Here, the *high* performance criterion excludes the rationale based on the *prevention* of productivity/efficiency losses through reduced employee turnover and/or sickness absence. Although they constitute legitimate areas of investigation, it does not provide insight in how employee well-being could relate to the *promotion* of organizational performance. This leaves the following three research issues which will guide the chapters to come:

- First, the black arrows and boxes depict the dynamic relationships between employee well-being and performance which are central to the framework. Here, chapter 3 and 4 look into "active" employee well-being and

performance concepts that signify a workforce that "has what it takes" and adhere to the organization's needs to survive in a contemporary work context.

- From there, the white arrows depict the examination of how employee well-being and effective discretionary effort enhance each other into organizational performance improvement (rather than preventing losses).

- Last, the grey arrows and boxes depict the investigation of those work and organizational determinants that affect organizational performance while also sustaining employee well-being. These will be further examined in chapter 5 and 6. Here, the three different and overlapping blocks of work and organizational (W/O) factors signify the possibility that well-being and performance processes do not share the same determinants, but that they can interact into beneficial outcomes for both well-being *and* performance. In chapter 7, the mediation of employee well-being and performance between W/O factors and organizational performance is examined.

- Additionally, the dotted arrows signify the feedback loops between the W/O factors and organizational performance. These are assumed, but will not be explicitly tested. All in all, the three research issues above provide the room to integrate multiple theoretical perspectives in the conceptual and empirical studies to come. Together, they take into account all 5 reasons for why theoretical perspectives and past research findings may differ.

Chapter 3

A rationale for employee vitality: the dynamics and conceptualization of an active well-being *and* performance concept [4]

3.1 INTRODUCTION

As organizations seek to know if its employees "have what it takes" to stay competitive and survive the demands of the present day market dynamics, the assessment of those employee attributes that could make a competitive difference is an increasing object of practical and academic investigation (Van Dyne, Graham & Dienesch, 1994; Ilgen & Pulakos, 1999; Parker, 2000; Frese & Fay, 2001; Sonnentag & Frese, 2002). This has led to defining and measuring those discretionary attitudinal and behavioural phenomena that are 'in some way beyond the reach of traditional measures of job performance but hold the promise for long-term organizational success' (Van Dyne et al., 1994: 765). Well known examples are the lasting streams of research on the (organizational) determinants and (organizational) performance effects of concepts like *job satisfaction* (Iaffaldano & Muchinsky, 1985; Judge, Thoresen, Bono & Patton, 2001), *organizational commitment* (Mowday, Steers & Porter, 1979; Allen & Meyer, 1990) and *organizational citizenship behaviour* (OCB; Organ, 1988; Podsakoff et al., 2000). These different employee performance concepts that have been subject to research for some decades now, cannot be considered to have

[4] A part of this chapter was based on an earlier version of a paper by Dorenbosch, L.W. & Van Veldhoven, M.J.P.M. & Paauwe, J. (2006). An Integrative Conceptual approach to the Well-being – Performance Link in the Modern Workplace: Towards a concept of Workforce Vitality. Paper presented at the WAOP conference, Nijmegen, NL.

emerged historically independent of each other. With regard to the relationships between these concepts in time, Guest (2002) observes the following:

> 'One of the original reasons for the rise of interest in the concept of organizational commitment was the persistent inability to find a strong relationship between satisfaction and performance (Iaffaldano & Muchinsky, 1985). What was needed was a more organisation-centred and potentially more stable concept and commitment to the organization seemed to offer this promise. However, after more than two decades of research, organizational commitment appears to be no stronger associated with performance than job satisfaction, though both show a consistent association with labour turn-over (Mathieu & Zajac, 1990; Meyer and Allen, 1997)'. (p. 340)

Guest's (2002) observation makes clear that in the light of gaining better organizational performance through employees, satisfied and committed employees are not the key performance concepts for organizational HRM practices and policies to focus on. Guest continues by stating:

> 'This second result provides a rationale for the view that the goals of HRM might be defined in terms of commitment, quality and flexibility (Guest, 1987).Where this is achieved, the performance will come from the quality and flexibility of workers rather than their commitment'. (p. 340)

In contrast to employee attitudinal aspects like satisfaction and commitment, grasping employee attributes that relate to their generic quality and flexibility would be helped by a focus on measuring actual employee behaviours. Not surprisingly, the research attention for OCBs (as a form of discretionary effort) and organizational effectiveness has exponentionally grown over the last decade (for an extensive overview see Podsakoff et al., 2000). However, recently, several scholars are focusing on employee performance concepts that would signify a workforce has "what it takes" to contribute to organizational success in a contemporary work context (Ilgen & Pulakos, 1999; Frese & Fay, 2001; Griffin, Neal & Parker, 2007; Fay & Kamps, 2006). Referred to as "active" performance concepts, Frese and Fay (2001) state it entails employees that can go beyond assigned tasks, who can develop their own goals, can self-start these goals, and take a long term perspective on their work and career. It is proposed that in modern work situations, job structures and career paths get more uncertain, ambiguous, more poorly defined and malleable, which leaves little or no structure one can easily adapt to (Murphy & Jackson, 1999; Parker, Wall & Jackson,

1998). Therefore, uncertain situations primarily would require of employees to behave proactively towards work and self-development in order to constitute a high performance workforce in a modern work arena (Fay & Kamps, 2006; Griffin et al., 2007). From employees this requires the expenditure of new type of qualitative work effort, but what are the implications for the required levels of health and well-being? And how do they interact? By focusing on a concept of *employee vitality*, employee performance and well-being issues can be combined.

3.1.1 Goal and Structure of this chapter

Taking the recent literature on "active" employee performance as a contemporary conceptual domain of discretionary employee effort, the goal of this chapter is to elaborate on the value of a concept of *employee vitality*. Central questions are: (a) What characterizes a healthy and highly productive workforce in a contemporary work context? (b) How does a new concept of employee vitality connect and further contribute to the research on employee health *and* performance? (c) What are the specifics of such a employee vitality construct? To do so, we will focus on employee performance as the expenditure of work effort which can differ in its amount, direction and type. From there we argue what the implications of different manifestations of work effort are for employee well-being and health and why a form of "dynamic" work effort signifies employee vitality. Last, we further specify the dimensions of employee vitality, which will be measured and validated in the next chapter.

3.2 Effort Expenditure and "High" Employee Performance

The concept of work effort can be considered a building block for understanding the performance/output of labour. Employees who invest greater effort into their work increase the likelihood that they will contribute organizational labour productivity and competitiveness (Brown & Leigh, 1996). However, work effort is an ambiguous term and both hard to define and measure (Yeo & Neal, 2004). To clarify the term effort in relation to contemporary job performance literature (see Sonnentag & Frese, 2002 for an overview), we will distinguish between (1) the amount, (2) the direction and (3) the type of work effort expenditure and the translation into what constitutes "high" employee performance (as shown in Figure 3-1).

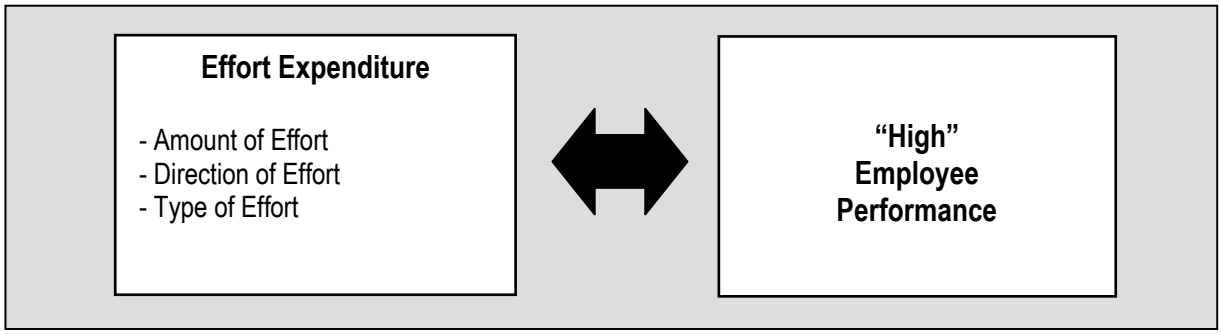


Figure 3-1: Overview of Effort Expenditure and "High" Employee Performance

The amount of work effort

Yeo et al. (2004) refer to work effort as the *level* or *amount* of resources that is expended in the job. Additionally, Green (2001) distinguishes between two categories of work effort: 'extensive' and 'intensive' effort. Extensive effort refers to the *time* spent at work (i.e. the amount of working hours one makes). Otherwise, intensive effort refers to the *intensity* of work during that time of work. One could think of the mental and physical *energy* an employee expends in his work (Brown et al., 1996; Blau, 1993). The difference between these categories of effort is that an employee working 8 hours could expend less energy than an employee could in 6 hours, depending on the "porosity" of the working day. This refers to the extent to which a working day knows gaps between tasks during which the body and mind rests (Green, 2001). Together, time and energy are considered basic (human) resources available to employees of whom the investment in work is within the discretion of employees. In addition to time and energy, other employee resources that cannot be overlooked are the skills, knowledge and experience of employees (Kanfer & Ackerman, 2004; Green, 2001). Naturally, the use of the full amount of personal competencies is also at the discretion of employees.

The direction of work effort

However, a greater investment of time, energy and competencies are not considered to directly relate to increased performance. Green (2001) states that employee productivity is also affected by organizational efficiency. For organizations, employees who are motivated to invest their time, energy *and* skills/knowledge into their job can increase their qualitative task performance; but when important aspects of the work organization (e.g., ordering of tasks, communication) are inefficient, job

performance will not reach optimal levels. Interestingly, increasing the efficiency of internal work processes or procedures is not only in the hands of management; it is also associated with the "contextual" employee performance dimension in the widely accepted distinction between task and contextual job performance (Griffin, Neal & Neale, 2000; Sonnentag & Frese, 2002).

Other than the resources that are expended on formal and in-role core job requirements (*task* performance), *contextual* performance refers to non job-specific or extra-role effort which 'does not contribute to the technical core but which support the organizational, social, and psychological environment in which organizational goals are pursued' (Sonnentag & Frese, 2002; p. 6). With regard to the effort-performance relationship, high performance would require the expenditure of personal resources on in-role and extra-role activities which emphasizes the importance of the *direction* of effort expenditure. Preferably, the expenditure of time, energy and skills/knowledge resources is directed towards *both* the task *and* work contextual domain.

The type of work effort

Arguing that a high amount of employee effort directed towards in-role and extra-role performance constitutes the building blocks of high employee performance, does not specify the *type* of effort and concrete employee behaviours or activities that would be relevant in modern day organizations. With reference to task performance one could think of work-specific oral, writing or up-to-date technical skills/knowledge to do a good job. With regard to contextual performance, Sonnentag & Frese (2002) make a distinction between (1) "stabilizing" employee behaviours which primarily aim at the smooth functioning of the organization as it is at the present moment and (2) proactive behaviours that focus on self-initiated, future-oriented actions that aims to change and improve the work situation (procedures and processes) or oneself (Crant, 2000; Parker, Williams & Turner, 2006; Frese & Fay, 2001). The stabilizing employee behaviours are argued to include traditional organizational citizenship behaviours (Organ, 1988) like helping co-workers, sportsmanship, organizational loyalty, organizational compliance and the like. Van Dyne and LePine (1998) state that most facets of OCB can be considered affiliative behaviours which refers to the degree to which behaviour is orientated at preserving internal relationships - still within stable task structures and in line with managerial objectives. Otherwise, proactive behaviours would include concepts like

personal initiative (Frese, Fay, Hilburger, Leng, & Tag, 1997), voice (Van Dyne & LePine, 1998), taking charge (Morrison & Phelps, 1999), self-development (George & Brief, 1992) or active learning (Taris et al., 2003). In comparison to traditional OCBs, employee proactivity is considered to "challenge the status quo" (Crant, 2000), "cause things to happen" (Van Dyne & Lepine, 1998) and "go beyond the processes presently implemented within the organization" (Fay & Sonnentag, 2003).

With regard to the importance of proactive employees that take initiative towards work and career development, Frese and Fay (2001) argue that in the modern job concept, individual responsibilities are increased as well as the pace of changes in the work and labour market. To keep up with these changes, individual employees themselves need to engage in "active" behaviour towards improving work processes and improving one's skills and knowledge. This stream of literature, therefore, challenges the traditional view on effective employees being a "satisfied, committed organizational citizen", as it emphasizes a passive employee that is not necessarily able to deal with the complexity and continuous changes in modern day jobs and organizations. For the remainder of this chapter, we speak of "passive" and "active" performance concepts that signify the differences in the type of effort employees can expend. Figure 3-2 summarizes how the amount, direction and type of work effort define "high" employee performance in this chapter.

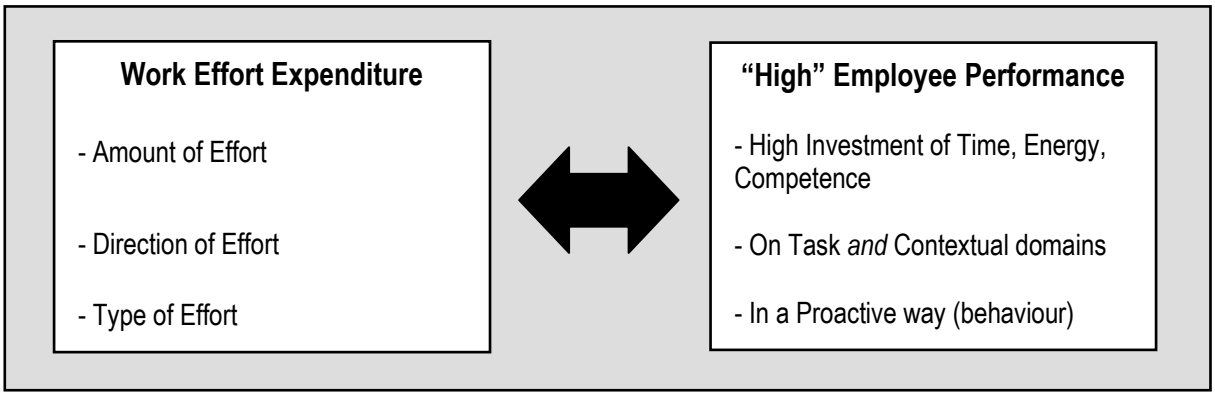


Figure 3-2: Specification of Effort Expenditure and "High" Employee Performance

3.2 CONSTRAINTS TO HIGH EMPLOYEE PERFORMANCE

Defining "high" employee performance alongside the amount, direction and type of effort or resources an employee invest in his work, prepares the way to discuss the

constraints to high employee performance. With regard to the amount of time, energy and competencies as three important resources that every employee can expend, employees can direct or allocate a certain amount of these resources to the task or contextual domain either spending it on, for instance, in-role skill usage, organizational citizenship behaviours or proactive action towards work and career. In this respect, Schnake (2007) describes a continuum of effort expenditure – from maximum effort to zero effort – which depicts that the propensity to expend a maximum of effort is associated with employee engagement in contextual performance on top of the minimally acceptable amount of effort needed to show good task performance. However, time and energy are considered "limited capacity resources" (Yeo & Neal, 2004; Hockey, 1997), which means that these resources are naturally scarce and constrain individuals in their allocation of time and energy among task and contextual activities. Looking at daily job performance, employees have contractual work hours and incidental overwork hours to expend which competes with the hours spend on private life and sleeping (see Bergeron, 2007). The physical energy an employee can expend competes with psychical and psychological costs (e.g., fatigue, exhaustion) that are associated with effort expenditure (Meijman & Mulder, 1998). Furthermore, with regard to the expenditure of competencies, current knowledge and skills are also limited as they run the risk of getting outdated. Especially in contemporary work settings, rapid strategic and technological developments require a constant update of employee competencies (Sennett, 2006). Therefore, the expenditure of current intellectual resources competes with future intellectual requirements. With regard to high employee performance (adequate allocation of proactive effort to both task and contextual performance) which requires a maximum amount of resources (Schnake, 2007), three tensions might threaten the pursuit of high employee performance:

(1) the tension between task and contextual performance
(2) the tension between maximum effort expenditure and health
(3) the tension between current and future high performance

Time Constraints: Tension between task and contextual performance

Recently, Bergeron (2007) addressed the possible tradeoffs between task and contextual performance (OCB in particular) as individuals are constrained by *time*. As Bergeron argues: 'For individuals constrained by time, it is unlikely that they will

have high task performance and high OCB. Rather, resource allocation forces a choice such that most individuals will focus on one activity at the expense of the other' (p. 1084). Based on a synthesis of research findings that indicate that employers give relatively greater weight to task performance than OCB in determining overall performance evaluations, rewards and to lesser extent career advancement, Bergeron (2007) poses that spending time on OCB might be good for the organization but costly for the individual. By choosing to allocate time to OCBs like helping others or volunteering in extra-role activities, employees do not choose to invest their limited amount of time in task performance. Here it is argued that employees might risk a loss of value because, in comparison to task performance, OCB is worth "less" to the individual. Additionally, in a sample of air traffic controllers, Griffin et al. (2000) found that also the difficulty of the job constrains the expenditure of OCB, as a difficult job requires more of the employee's attention (e.g. time) directed towards the task performance domain. In sum, for employees to engage in high performance (high task *and* contextual performance) they will face certain tensions due to the limitations in the amount of time there is to expend. Additionally, contextual performance can be costly to the individual, which might force him/her to allocate effort to task performance at the expense of contextual performance.

Energy Constraints: Tension between maximum effort expenditure and employee health

In a similar vein, the allocation of energy to both high task *and* contextual performance is also constrained. As high employee performance requires a maximum amount of effort, it also requires greater energy investments which bring into play the role the physiological and psychological costs that come with the expenditure of (extra) effort (Meijman & Mulder, 1998; Fay & Sonnentag, 2003). The tension entails that to the extent that maximum performance "overtaxes" the amount of energy an employee possesses, the maximal amount of energy an employee can expend gets drained and gradually drops (Meijman et al., 1998). Individuals who perform maximally while being fatigued, drain their energy resources to a point that they experience health problems. Based on the conservation of resources (COR) theory (Hobfoll, 1989), it is stated that people/employees want to conserve a healthy amount of their physical and psychological resources and choose to direct a minimal amount of energy towards in-role activities expected from them (Bakker, Demerouti

& Verbeke, 2004). So in the process of engaging in both high task *and* contextual performance, the need for high levels of energy can come at the expense of employee health when it would overtax the amount of energy available. Consequently, this would result in a withdrawal from effort expenditure directed towards the contextual domain. However, when total performance demands severely drain employee energy resources, greater withdrawal (*absenteeism*) or total withdrawal from effort expenditure (*turn over*) might follow (Schnake, 2007). Therefore, energy resources constrain the maximal amount of effort expenditure and can negatively affect contextual and task performance to the extent it is overtaxed.

Competence Constraints: Tension between current and future high performance

A last constrain to high performance is that a maximum expenditure of competences in the job is no guarantee of endurable high performance. Nowadays, skills and knowledge need continuous updating to match the organizational requirements. Therefore, intellectual resources are less and less stable resources one can expend. Sennett (2006) expresses the tension between current and future employee performance in the "spectre of uselessness", which refers to the continuous threat to employees that their current skills devaluate and will not serve them for life. Sennett (2006) argues that 'skill extinction has sped up not only in technical work, but also in medicine, law, and various crafts. One estimate for computer repairmen is that they have to relearn their skills three times in the course of their working lifetime, the figure is about the same for doctors. That is, when you acquire a skill, you don't have a durable possession' (p. 95). Given the tension between current and future competences, endurable high employee performance is constrained up to the point that employees are unable to develop new up-to-date skills and knowledge.

3.3 OVERCOMING TENSIONS: THE CONCEPT OF EMPLOYEE VITALITY

As summarized in Figure 3-3, the crux of effort expenditure in relation to high employee performance is the amount, direction and type of employee effort expenditure that (a) would be effective and discretionary for organizations in a contemporary work context and (b) would be endurable despite the fact that high employee performance is constrained by limitations of personal time, energy and competence resources.

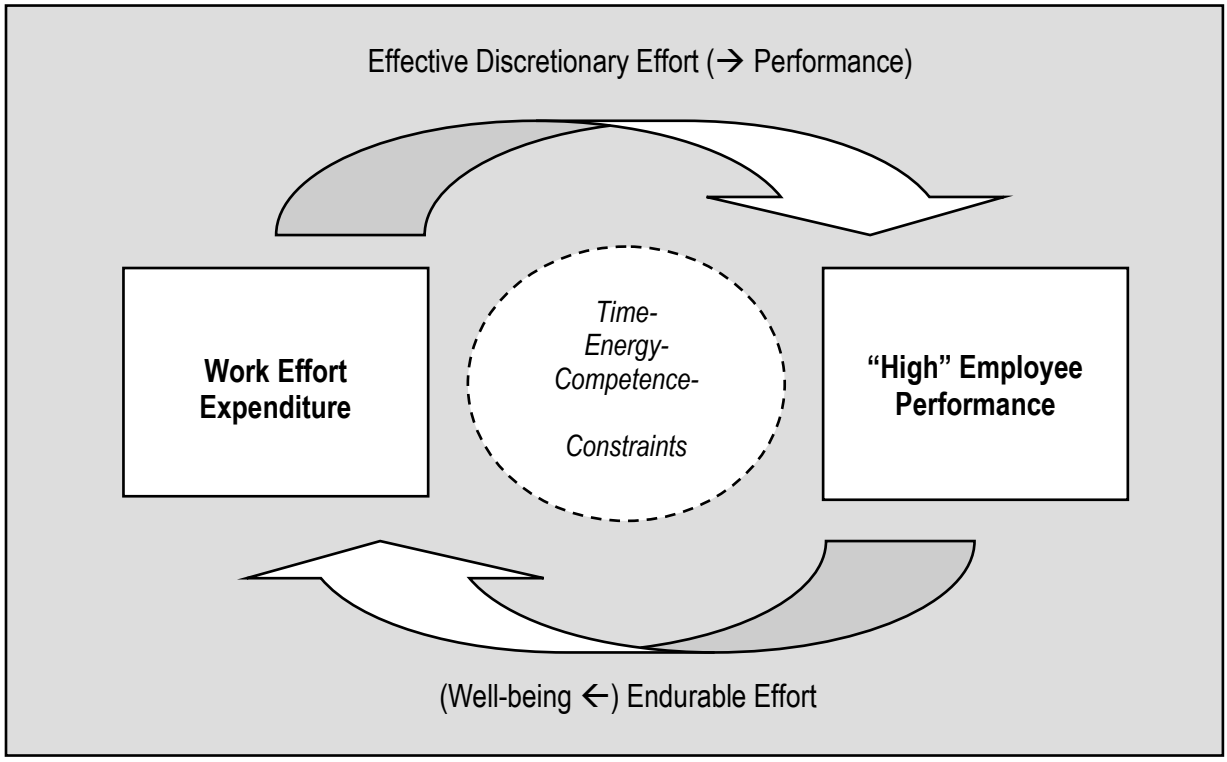


Figure 3-3: The dynamics between discretionary effort & endurable Effort

Effective Discretionary Effort

With regard to the type of effort that is effective towards organizational performance in a modern work context, we described "active" performance concepts including employee proactivity towards work and development in comparison to traditional and more "passive" performance concepts of employee commitment/satisfaction and OCB. Similar to passive performance, active contextual performance is also constrained by time and could come at the expense of valuable task performance (Bergeron, 2007). However, it proposed that proactivity towards work includes solving operational and process inefficiencies and could actually save time (Fay & Sonnentag, 2003). As such, proactivity towards work would not necessarily compete with the time available for task performance and could even enhance task performance. Additionally, for proactivity towards one's development it can be argued that actively upgrading one's skills and knowledge could help to reduce the extra energy and time needed for difficult task performance that Griffin et al. (2000) found to come at the expense of contextual (OCB-like) performance. Furthermore, it is the employee's own actions towards the development of new skills and knowledge that enables the employee to highly perform now and in the future. As such,

expending an active type of effort would be more able to result in high employee performance.

Endurable Effort

Endurable work effort refers to work effort which in its expenditure does not drain resources needed for future effort expenditure. As the sum of task and contextual performance requires high effort expenditure (Schnake, 2007), it also requires a high amount of energy to cope with the performance demands. Additionally, in order to sustain the amount of energy to expend on high performance active performance concepts could also play a role. Similar to the relationship between active performance concepts and overcoming the time constraints to high performance, active work effort types could also create the time to recover from high energy expenditure by taking initiative towards extensifying energy intensive work activities. Recovery time (e.g., on-the-job breaks and off–the-job recovery time) is considered a crucial element in sustaining employee energy as it prevents energy drainage to a point that it negatively impacts employee health and the potential amount of energy to expend (Meijman & Mulder, 1998).

Effective + Endurable Effort = Employee Vitality

With the focus on those employee effort aspects that would more directly be associated with high and endurable employee performance in a modern work context, the high amount of energy *and* a active type of effort expenditure characterize a "*vigourous and proactive employee*" instead of an "*committed organizational citizen*". Although these characterizations do not have to fully exclude each other, the rationale presented above depicts that to the backdrop of an increasing dynamic work context, "dynamic" work effort is required in order to perform and keep performing under continuously changing conditions. From here, high amounts of energy and the engagement in proactive behaviour is characterized as *employee vitality*. As dynamic work effort, *employee vitality* allows for bridging the employee performance and employee health–oriented literature. In a general sense, Ryan & Frederick (1997; also Nix, Ryan, Manly & Deci, 1999) referred to vitality as a "dynamic reflection of well-being" which encompasses a feeling of possessing energy available to one's self together with feeling that one is the origin of action. In this representation, vitality depicts a human attribute of aliveness and vigour in which a person has the control over one's energy to initiate action. This indicates that

vitality is more than just feeling energetic – it also involves that someone initiates to do something with it (i.e., proactivity). Translated to the work context, employee vigour *and* proactivity is proposed to give more insight in the behavioural dynamics associated with high, active and sustainable employee performance and health. In the next section, we will elaborate on the dimensions underlying the employee vitality concept and relationships between those dimensions.

3.5 THE DIMENSIONS OF EMPLOYEE VITALITY

Figure 3-4, from top to bottom, depicts a conceptual overview of the two employee vitality components (proactivity and vigour) and the four dimensions that we will discuss in this paragraph.

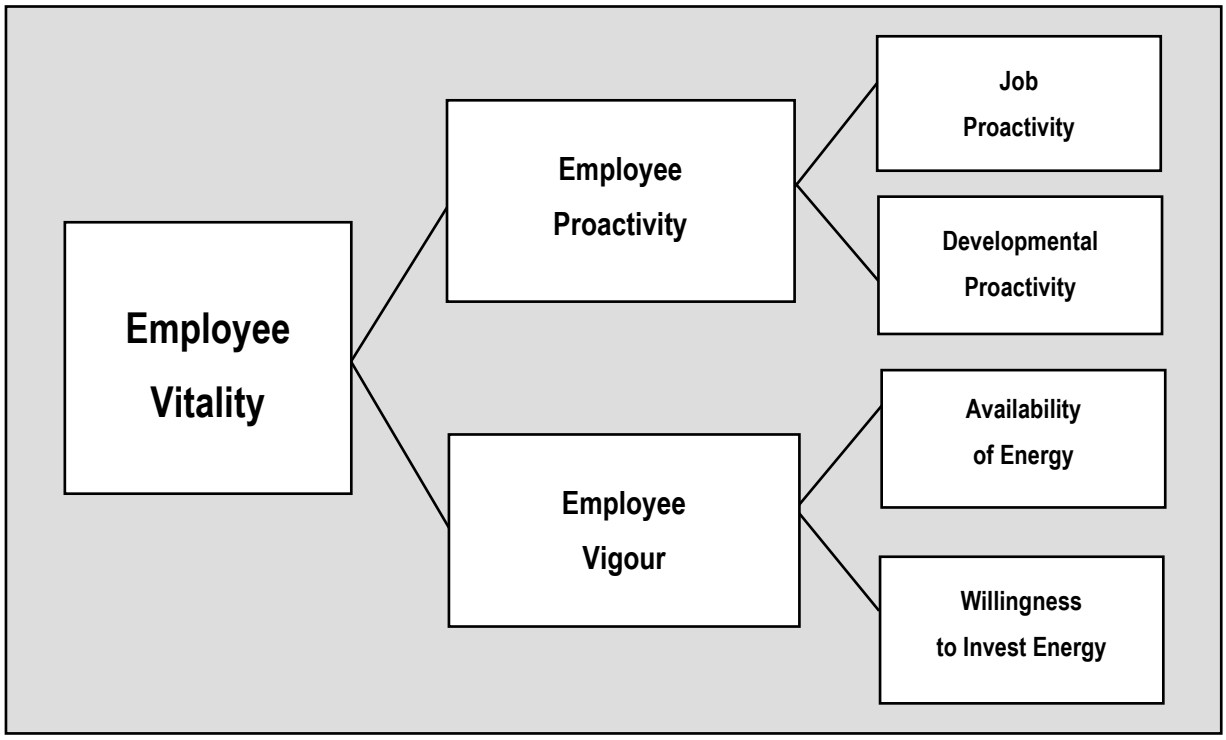


Figure 3-4: Conceptual overview of employee vitality components and dimensions

3.5.1 Employee proactivity

Already described in the previous paragraphs, Frese and Fay (2001) refer to "active performance concepts" as concepts that relate to attitudinal and behavioural aspects of employee performance that match the characteristics of the modern work context.

In this respect, we already summed up the focus of some authors on, for example, *taking charge* (Morisson & Phelps, 1999), *personal initiative* (Frese et al., 1997) and *proactive work behaviour* (Parker et al., 2006). A common difference between active concepts and passive concepts is the emphasis on the employee as an actor in contrast to the employee as an object of organizational stimuli and workplace conditions. According to Frese & Fay (2001) this entails employees that can go beyond assigned tasks, who can develop their own goals, can self-start these goals, and take a long term perspective on their work and career. It is proposed that in modern work situations, job structures get more ambiguous, more poorly defined and malleable, which leaves little or no structure one can adapt to (Murphy & Jackson, 1999; Parker, Wall & Jackson, 1998).

Therefore, uncertain situations primarily require a proactive approach to work that helps to identify the present tasks and long-term needs of the organization (Frese & Fay, 2001; Parker, 2000). As recent literature tries to capture those employee behavioural elements of active performance, proactive effort can be directed at two work-related domains. First, an employee can be proactive and take initiative towards its own activities in the work process in which he/she acts in a self-starting manner and shows a long-term perspective in order to keep the work process at an optimum level, also when circumstances change or process errors occur (Fay & Sonnentag, 2002). We will refer to this active performance-oriented employee attribute as *job proactivity*. Second, Warr & Fay (2001) also distinguish an active orientation an employee can hold towards their own development within the current job and towards future job opportunities. This behaviour relates to concepts like *employability orientation* (Van Dam, 2004) or *learning motivation* (Taris, Kompier, De Lange, Schaufeli & Schreurs, 2003), in which employees actively scan future requirements and seek to gain new knowledge or approach knowledgeable persons to keep one's own abilities at an optimum level. For the remainder of thesis this is referred to as *developmental proactivity.* Together, job and developmental proactivity constitute core elements of the employee proactivity concept when defined as 'self-initiated and future-oriented action that aims to change and improve the situation or oneself'' (Parker et al., 2006: p. 636).

3.5.2 Employee Vigour

Where active performance concepts have been pitted against more passive employee performance attributes like satisfaction, commitment and OCB, the occupational

health psychology literature differentiates between negative/passive and positive/active concepts of employee health and well-being. The most important feature is that in contrast to strain-related and negative concepts of health (e.g., illness, fatigue, anxiety, depression and burn out), active and positive health includes concepts that go beyond the mere absence of unwell-being (Warr, 1994; Schaufeli & Bakker, 2004). In this view, employee well-being is defined by the presence of positive well-being, fitness or aliveness (Schaufeli & Bakker, 2004; Spreitzer et al., 2005). Specifically addressing the possible benefits of positive and active indicators of mental health reflects an emerging trend towards 'positive psychology' or 'positive organizational behaviour' (Luthans, 2002) that focuses on human strengths and optimal functioning rather than on weaknesses and malfunctioning (Seligman and Csikszentmihalyi, 2000).

` Several authors distinguish related aspects like *work engagement* (Schaufeli & Bakker, 2004), *flow* (Csikszentmihalyi, 1998; Demerouti, 2006) or *thriving at work* (Spreitzer, Sutcliff, Dutton, Sonensheim & Grant, 2005). An element central to active health constructs like work engagement and thriving at work, is the extent to which an employee feels vigorous as opposed to a negative focus on feeling fatigued and exhausted. Maslach, Schaufeli and Leiter (2001: 417) refer to the concept vigour as 'high levels of energy and resilience, the willingness to invest effort in one's job, the ability to not be easily fatigued, and persistence in the face of difficulties'. Therefore, at the construct level, employee vigour signifies not only the availability of energy, but also the willingness to expend energy into work. As already outlined, in order to adequately perform in the modern work context, physically fit and vigorous employees are considered desirable (Fay & Kamps, 2006).

3.5.3 Reciprocal relationships between proactivity and vigour

In relation to employee proactivity, which signifies the *type* and *direction* of effort expenditure, employee vigour encompasses the amount or *availability* of energy together with the *willingness* to expend energy at work. From a conservation of resources theory (COR; Hobfoll, 1989), there is the causal notion that drained energetic resources impair one's health and therefore one will try to minimize extra effort expenditure like proactivity to conserve a minimum level of health. However, this relationship could also be bidirectional as it is also argued that proactivity affects employee vigour.

Vigour → Proactivity

With regard to the concepts of vigour and proactivity, Sonnentag (2003: p. 520) describes several reasons why energy resources relate to employees showing proactive behaviour. First, the amount of energy is regarded a key element for employees to actually expend extra effort on self starting and persisting in proactive behaviour. Second, energetic employees can accomplish their in-role tasks with less effort (Hockey, 2000), which leave extra resources to be spent on proactivity.

Proactivity → Vigour

Besides vigour positively affecting proactivity, employee proactivity is also expected to restore and regenerate employee vigour. Referring to the way of coping with energy-depleting workplace demands, proactivity (Parker & Sprigg, 1999) and active coping style (De Rijk, Le Blanc, Schaufeli & De Jonge, 1998) are thought to buffer adverse effects of prolonged employee strain. It is expected that people who actively engage in their work and personal development not only buffer the draining of energy due to high work demands, but will also seek new resources that fuels the energy one is able to expend. As Crant (2000: p. 436) refers to proactivity as "taking initiative in improving current circumstances or creating new ones", this employee orientation aims at an optimal efficiency in carrying out work.

Additionally, employees who pursue an active learning strategy would continuously engage in acquiring, maintaining, and using skills and knowledge to be able to keep up with changing requirements. In work stress coping literature, the joint activity of being proactive towards the job and learning encompasses an active, innovative and problem-focused coping style in dealing with high demands or challenges (see Carver, Scheier & Weintraub, 1989; Ingledew, Hardy & Cooper, 1997; Lazarus & Folkman, 1984; Bunce & West, 1996; De Rijk, Le Blanc, Schaufeli & De Jonge, 1998). This style represents attempts to "remove or circumvent the stressor (strain source) or to ameliorate its effects" (Carver et al., 1989: p. 268 in Jex et al., 2002). As such, employee proactivity entails behaviour to alter *external* factors to gain efficiency in processes, procedures and designs that are below an optimal level (Fay & Sonnentag, 2002). Otherwise, employees engaging in active learning strategies would seek to improve their own *internal* qualifications that are below current or future optimal level.

Proactivity ←→ Vigour

In sum, showing proactivity does not only help the employee to preserve en regenerate new energy, but can only occur under the condition that one has enough amount of energy to expend. As such, we propose a reciprocal relationship between proactive motivational and physical energetic resources (see also Ryan & Frederick, 1997; Salanova, Bakker & Llorens, 2006). As a consequence, we do not presume a strict causal relationship between the proactivity and vigour, but regard them also mutually supportive components, which in their coexistence signify the *employee vitality* concept.

3.6 CHAPTER CONCLUSION AND NEXT CHAPTER

To this point, we have given the background and conceptual specifics of the employee vitality as an active performance and well-being concept that would be associated with endurable high employee performance in the dynamics of the contemporary workplace. We distinguished between the more operational performance-oriented component of employee proactivity, and the more health and well-being related component of employee vigour. A further specification of these components boiled down to four active employee dimensions*: job proactivity, developmental proactivity, availability of energy and willingness to invest energy*. Figure 3-5 shows how the distinguished employee vitality dimensions might fit into the overall research framework presented in Chapter 2. The grey boxes show the further specification of the active employee well-being (vigour) and discretionary effort (proactivity) variables in this research.

As proposed in this chapter, the relationships between the vitality dimensions are expected to be independent, but to some extent coexistent and mutually supportive. In the next chapter, the measurement and a first validation of these propositions underlying the employee vitality concept will be addressed.

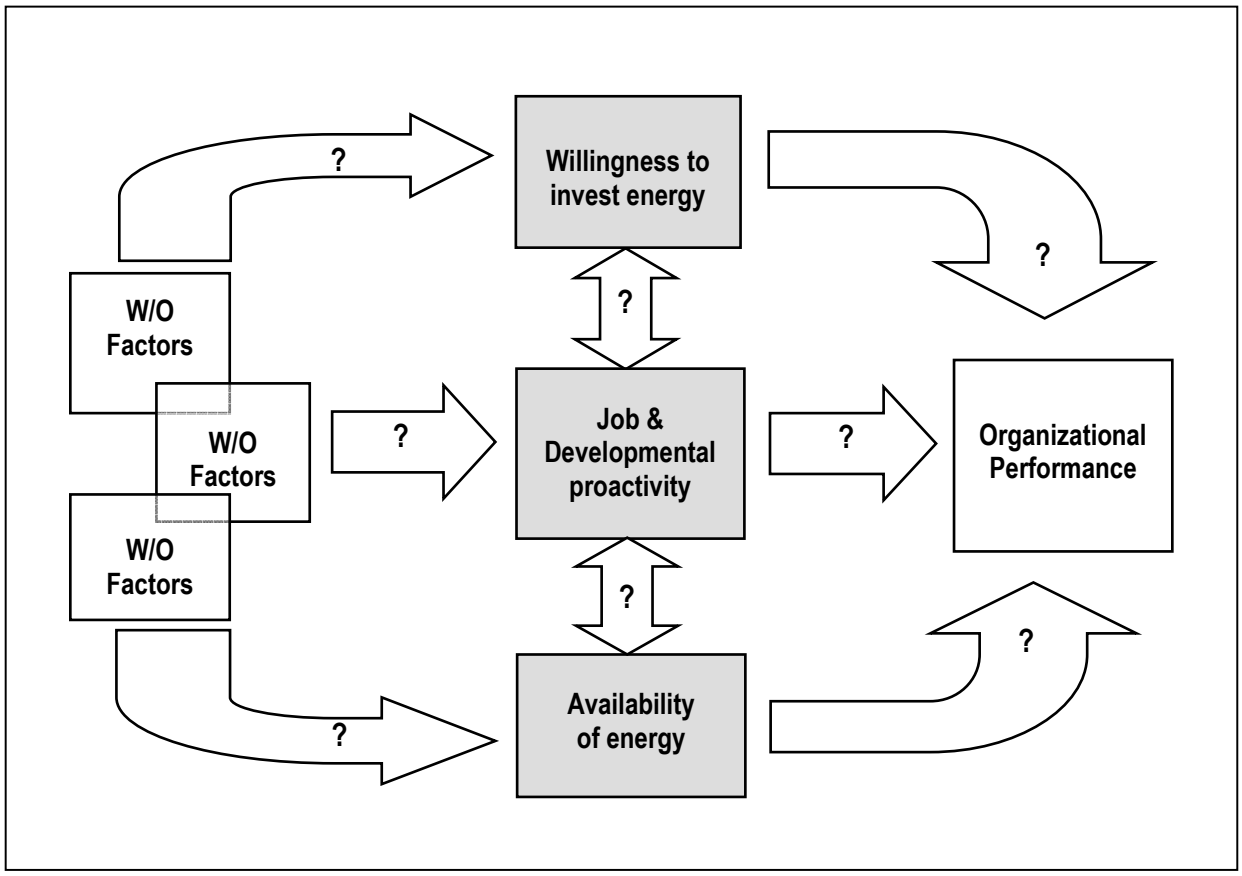


Figure 3-5: This Chapter's Contribution to the overall Research Framework

Chapter 4

The measurement and validation of employee vitality [5]

4.1. INTRODUCTION

Following the rationale for employee vitality and the dimensions that were elaborated on in the previous chapter, in this chapter newly developed measures are introduced as well as a first validation of the employee vitality concept. For the active performance dimensions of job proactivity, developmental proactivity, and the active health dimensions of available energy at work and the willingness to expend energy, we first developed measures. Second, sample criteria for adequately testing the quality of the measures were formulated. They are described in the method section. To validate whether the four vitality constructs meet the theoretical properties outlined in previous chapter, we formulated specific hypotheses on the extent to which:

(1) The developed employee vitality measures grasp distinctive aspects of the employee vitality construct and meet the psychometric standards *(factorial validity)*,

(2) The vitality components of employee proactivity and employee vigour are interrelated *(construct relationships)*,

[5] A part of this chapter was based on an earlier version of a paper by Dorenbosch, L.W. & Van Veldhoven, M.J.P.M. (2007). Workforce Vitality: Validation of an Active Performance Concept at the Group Level. Paper presented at the EAWOP conference, May 2007, Stockholm, Sweden.

(3) are more strongly interrelated, just as availability of energy and the willingness to invest energy are more strongly interrelated *(dimensional validity),*

(4) Employee proactivity and employee vigour constructs are distinctive from passive performance and health related concepts *(discriminant validity)* and

(5) Scores on four dimensions of employee vitality are higher for employees working in highly effective departments (*predictive validity).*

4.2. VALIDATION HYPOTHESES

Factorial validity

To test whether the item content of each of the measures actually follow the pattern of four distinctive and reliable active constructs we will examine the factorial validity of the items in more detail. Based on the distinguished active employee attributes, we believe to find proactivity towards the work process (job proactivity) and proactivity towards learning and development (developmental proactivity) to be two distinct types of employee proactivity. The same accounts for the two dimensions of employee vigour. Hence, the first hypotheses read:

Hypothesis 1a: Items for employee proactivity (job proactivity and developmental proactivity) and employee vigour (availability of energy and willingness to invest effort) load on four separate factors.

Hypothesis 1b: The four scales for employee proactivity and employee vigour show adequate reliabilities.

Construct relationships

Further, following the factorial validity, we developed four scales which for a good understanding of the construct in relation to the other constructs should not correlate both too low (questions the relatedness of the constructs) or too high (masks the idiosyncrasy of the scale content). Medium-sized correlations (that range from .30 to .50; Cohen, 1988) between the three constructs suggest separate but dependent constructs. With regard to the relationship between job proactivity and developmental proactivity, Warr & Fay (2001) did find medium-sized correlations

between similar constructs, whereas Sonnentag (2003) found a high correlation (r=.65) between similar constructs. With regard to the relationship between the availability of energy and proactivity, Sonnentag (2003) reported (almost) medium-sized correlations between the work engagement scale (which includes vigour-items; see Schaufeli & Bakker, 2004) and job proactivity (r = .39) and developmental proactivity (r =.51). Based on these findings and taking into account the proposition that proactivity and vigour in practice have a reciprocal relationship without any strict assumptions of causality involved, we formulated the following hypothesis:

Hypothesis 2: Relationship between the four scales for proactivity and vigour show medium-sized correlations

Dimensional validity

More specific than the expectation that all active employee constructs will show medium-sized correlations, it is also expected that the two constructs for employee proactivity show stronger correlations, just as we expect that the two constructs underlying employee vigour will show stronger correlations with each other than with the proactivity constructs. Hence, we expect that the dimensions of proactivity and vigour underpinning the notion of the active employee can also be distinguished. Two additional hypotheses read:

Hypothesis 3a: The two scales for proactivity show higher correlations with each other than with the two scales for employee vigour

Hypothesis 3b: The two scales for vigour show higher correlations with each other than with the two scales for employee proactivity

Discriminant validity

To test whether the active performance concepts are distinct from both passive performance indicators as well as passive/negative health indicators we expect that they will display distinct relationships. In similar vein, Parker (2000) already found in a second-order factor analysis that proactive motivation measures can be differentiated from those more passive employee measures (including strain, satisfaction and commitment) traditionally used in research. We will test this proposition by including passive measures for overall job satisfaction and

organizational commitment. Also, we include measures for passive health including the work-related fatigue and work-related worrying. For the active attributes to be distinct from more passive employee attributes, the correlations between the scales should reveal such differences. Hence, the hypothesis reads:

> **Hypothesis 4:** The four scales for employee proactivity and employee vigour show higher correlations with each other than with the passive performance and passive health scales.

Predictive Validity

Finally, to look into the underlying proposition that the four employee vitality dimensions actually would relate to higher organizational effectiveness, the following hypothesis is tested.

> **Hypothesis 5:** In highly effective work units, employees score higher on employee proactivity and employee vigour than employees working in less effective work units.

4.3. METHODS

4.3.1 Procedure and Response

The data for this study were collected between May 2006 and February 2007 from a heterogeneous set of a total of 13 small, middle and large-sized Dutch organizations in a diversity of sectors, including *health care* (hospital, child care), *industry* (mobile phone repair, technical support, construction material production), *service sector* (IT services, security services, institute for social policy development), *(semi) government* (civil service, customs), *education* (elementary schools) and the *financial sector* (banking institutions). After contact with heads of departments/work units, line managers or internal HR advisors within the organizations, surveys were distributed among employees. Stamped envelopes were attached to the questionnaires, which were directly addressed to the author's university address. For the distribution of surveys within a large hospital, banking institutions and quality control agency, we collaborated with an agency specialized in employee survey research. For these three organizations, hard-copy as well as electronic surveys were distributed of which the

raw data came available to the author via this agency. In the 13 organizations a total of 2983 employee surveys were distributed.

A total of 1769 employee surveys (response rate of 59%) out of 112 work units were returned. For the purpose of this study we chose to balance our sample (as far as possible) with regard to the included industry types, job types, employee age, gender and educational level. Because the data collection in collaboration with the survey organization was aimed at all employees within the organizations, the total sample contained an overrepresentation of hospital and bank employees. Therefore, we selected the final employee data from 51 work units which reduced our sample to 736 employees (total response rate 25%). See Table 4-1 for an overview of the distribution of employee data over different sectors in this study's working sample.

Table 4-1: Distribution of response – Sector

Sector	Organizations	# Departments	# Employee Surveys
Medical/Care	Hospital, Child care agency	24	330
Industry	Technical Support, Repair Services, Construction, Quality Control	13	187
Services	Security Services, IT Consultancy, Policy Research, Financial / Bank	10	167
Government	Customs, Local Government	2	30
Education	Elementary Schools	2	22
Total/Average		51 (100%)	736 (100%)

4.3.2 Working sample specifics

We chose to stratify our sample based on the type of setting in which work in the different work units was conducted. This was done to control for the fact that results might get influenced by objective characteristics of the job type. Also it allowed us to work with a balanced, heterogeneous sample that is better generalizable to the working population. As such, based on an inspection of the job titles and company

background information, we coded and allocated each of the work units from the 13 organizations into the categories *blue collar* work, *white collar* work and *pink collar* work. To avoid a disproportional amount of work units with similar job types; we chose to include an equal amount of work units within each job type category. As shown in Table 4-2, we distinguished between 17 units in blue collar work settings, 17 units in white collar settings and 17 units in what we termed "pink" collar work settings consisting of nursing, caring and medical supportive professions. A total of 51 work units from all 13 organizations were included in the balanced sample which contained the data from 736 employees consisting of 282 blue collar employees, 234 white collar employees and 220 pink-collar employees.

Table 4-2: Distribution of response – Job Type

Job Type	Job Titles	# Departments	# Employee Surveys
Blue Collar	e.g., production workers, alarm installation technicians, product quality controllers, operators, dishwashers	17	282
White Collar	e.g., customer service, IT consultants administrators, teachers, financial advisors	17	234
Pink Collar	e.g., nurses, medical assistants, child care employees	17	220
Total/Average		51 (100%)	736 (100%)

Further, Table 4-3 shows that 55% of the employees in the working sample were female of which the largest proportion (44% of the female respondents) was occupied in pink collar work settings. Twenty-eight percent of the employees in the total sample were lower educated (lower vocational training or lower), 32% had middle level education (middle vocational training or equivalent), and 40% were highly educated (higher vocational training or university level education). The average age was 40 years with a standard deviation of 10.9. Thirty six percent of the respondents were under the age of 35; 44 percent were between 35 and 50; and 20 percent were older than 50 years. On average this formed a balanced working sample.

Table 4-3: Distribution of response – Age, Education and Gender

Age group	Percentage	Education	Percentage	Gender	Percentage
< 35 years	36%	Higher	40%	Female	55%
35 – 50 years	44%	Middle	32%	Male	45%
> 50 years	20%	Lower	28%		
Total	100%	Total	100%	Total	100%

4.4 MEASURING EMPLOYEE VITALITY: MEASURES

4.4.1 Employee vitality measures

The employee vitality components of proactivity and vigour were measured with new scales in the Dutch language. As described above, for employee proactivity, we included items in our analyses to measure proactivity towards the work process (job proactivity) and proactivity towards learning and development (developmental proactivity) (see Warr & Fay, 2001).[6] For measuring the concept of vigour, we included items that refer to the amount of physical energy one has to expend during the whole work day (availability of energy) and the willingness to invest this energy into the job (see Maslach et al., 2001).

Job Proactivity For *job proactivity*, we included 5 items that were partly derived from the Personal Initiative Scale (Frese Fay, Hilburger, Leng, & Tag, 1997) and the Taking Charge Scale (Morrison & Phelps, 1999). First, three items reflect the extent to which employees initiate new ways of working and solve problems when work processes contain inefficiencies, (*'In my work, I make suggestions to improve the way we work'; 'When work methods or procedures are not effective, I try to do something about it'* and '*When something is not right in the way work is done around here, I try to improve it'*). Second, one item taps the degree of employees taking initiative to challenge the status quo ('*I take initiative even when others don't).* Third, because implementing new initiatives often needs supervisor support, we included one item to ask whether

[6] See Van Veldhoven & Dorenbosch (2008) for a study including this measure in relation to employee age and career development

employees take action by actively discussing improvements with their direct supervisor (*'I discuss work methods with my supervisor, when I think they could be improved'*). Items were answered on a 5-point (*1 = 'largely disagree' to 5 = 'largely agree'*).

Developmental Proactivity To measure *developmental proactivity* we included 5 items that were partly derived from the Learning Motivation Scale (Taris, Kompier, De Lange, Schaufeli & Schreurs, 2003) and the Job Aspiration Scale (Warr, 1990). Following the reasoning of Karasek & Theorell (1990) and Taris et al. (2003), the items reflect the degree of taking action to change one's behavioural patterns. We included three items that tapped the degree to which employees set challenging goals and actively look for situations in which they can expand their skills and knowledge (*'In my work I set myself challenging goals'*, *'In my work, I search for people from whom I can learn something'* and *'In my work, I keep trying to learn new things'*). Furthermore, we included two items that tapped the degree to which employees are concerned with and self-assess future skills and knowledge needs, as well as take action to adapt to these estimated future needs *('I think about how I can keep doing a good job in the future'* and *'With regard to my skills and knowledge, I see to it that I can cope with changes in my work'*). Items were answered on a 5-point scale (*1 = 'largely disagree' to 5 = 'largely agree'*).

Availability of Energy For measuring the *availability of energy* we used 5 items that were modelled after vigour-items in the Utrecht Work Engagement Scale (Schaufeli, Salanova, Gonzalez-Romá, & Bakker, 2002) and the Subjective Vitality Scale (Ryan & Frederick, 1997). The answering scale asks respondents to rate the frequency of feelings of energy during the whole work day in 4 points (*1 = never, 2 = sometimes, 3 = often, 4 = always).* Through this we control whether levels of energy do not systematically get drained during the workday. With the items we aimed at stable levels of energy from the beginning to the end of the work day *(e.g., 'At the beginning of a working day I have plenty of energy'*, and *'By the end of the working day I can still adequately concentrate on my work').*

Willingness to Invest Energy For measuring the employee's *willingness to invest energy* into the job, we used 4 reversed coded items originally part of the *task resistance* scale retrieved from the VBBA questionnaire (Van Veldhoven, 1994; Van

Veldhoven & Meijman, 1994). Respondents scoring low on their resistance to do their job and invest in their job (tasks) are likely to represent an employee who is highly willing to invest and expend effort into their job tasks *(e.g., 'I do my work because I have to, and that says it all'* and *'I have to continually overcome my resistance in order to do my work; reverse coded, 1 = 'largely agree' to 5 ='largely disagree').*

4.4.2 Passive performance and health measures

To conduct additional analyses on the distinction between the vitality scales and passive performance/health scales, we included measures that are regarded as passive or negative counterparts of proactivity and vigour. Based on Parker (2000) we included measures for the passive motivational concepts of organizational commitment and job satisfaction as a passive counterpart of employee proactivity. For measuring the passive counterpart of employee vigour we included indicators of work-related fatigue and work-related worrying.

Organizational Commitment For measuring the degree of the employee's commitment to the organization we included 3 items for *affective organizational commitment* retrieved from the VBBA (Van Veldhoven & Meijman, 1994), which are based on Allen and Meyer's (1990) affective commitment scale. The items tap the extent to which employees have strong feelings of belongingness (e.g., *'In this organization I feel perfectly at home*') and identification with the organization (e.g., *'My own opinions strongly resemble those of my organization'*). Items were rated on a 5-point scale (*1 = 'largely disagree' to 5 = 'largely agree'*). Cronbach's alpha is .76.

Job Satisfaction Second, we included a single-item measure for measuring the respondents *overall satisfaction* with working for his/her organization. Although using single-item measures for psychological constructs is usually discouraged because of the presumed low reliabilities, a meta-analysis by Wanous, Reichers and Hudy (1997) showed that single-item measures highly correlated with a diversity of scale-type measures of job satisfaction. Drawing on their conclusions, the use of a single-item measure for job satisfaction was considered acceptable. Respondents could respond on a 5-point scale (*1 = 'largely disagree' to 5 = 'largely agree'*).

Work-related Fatigue To measure passive or negative employee health indicators, we included two strain measures: *work-related fatigue and work-related*

worrying. Work-related fatigue was measured with a shortened 6-item version of the Need for Recovery Scale developed and validated by Van Veldhoven and Broersen (2003). Conceptually, it is a measure of short-term work related fatigue that bridges the stage between normal work-related effort and serious long-term work related fatigue, such as burnout (Van Veldhoven et al., 2003: 14). The 4-point response scale asks the respondent to rate the frequency of showing symptoms indicating that he/she did not fully recover from the effects of sustained effort during the working day (*1 = 'never' to 4 = 'always'*). Sample items are *'I find it difficult to concentrate in my free time after work' and 'When I get home from work, I need to be left in peace for a while'*. Cronbach's alpha is .83.

Work-related Worrying *Work-related worrying*, indicates the extent to which respondents keep worrying about their job after work and find it difficult to distance oneself of their work when coming home. For this we used a 3-item version of Warr's (1990) *negative job carry-over* measure. Respondents could respond on a 4-point scale (*1 = 'never'to 4 ='always'*). A sample item is *'After I leave my work, I keep worrying about job problems'*. Cronbach's alpha is .72.

4.4.3 Additional measures

Covariates In order to take into account the possible confounding effects of individual and job type differences with regard to employee vitality, we included the control variables age (continuous), gender (*0= female; 1 = male*), educational level (1 = low to 6 = high) and job type (*dummy coding; blue collar = 1; white collar = 1; pink collar = 1*) as covariates.

General Unit Performance Finally, for the purpose of testing the differences in vitality among employees working in lower and higher effective departments/work units, a scale for general unit performance was included. The scale exists of 6 items that tap the degree to which work units' (1) sickness absence is under control, (2) targets are met, (3) customers are satisfied, (4) financial situation is good, (5) the work unit distinguishes itself positively from competitors and (6) the overall functioning is considered to be at an optimal level. For 31 units in our sample, first line managers rated the general effectiveness of their work unit on these 6 items on a 5-point scale (*1 = 'to a very low extent'; 5 = 'to a very high extent'*). Cronbach's alpha is .67.

Subsequently, the work units were grouped into two categories (lower effective and higher effective units) based on their general performance. Units in the top 35% percent of performance scores were grouped into the highly effective unit category – the other 65% were grouped into the lower effective unit category.

4.5. MEASURING EMPLOYEE VITALITY: RELIABILITIES AND VALIDATION

To validate the four vitality measures, first, we ran factor analyses on the individual item scores and calculated the reliabilities for each of the included scales (*factorial validity*). Second, it was checked whether the correlations between the individual proactivity and vigour scales were medium-sized and if they were not confounded by individual and job type differences (*scale relationships*). Third, the dimensionality of the employee vitality scales was further investigated to see to what extent employee proactivity and vigour constitute separate though interrelated aspects of employee vitality *(dimensional validity)*. Fourth, we compared the correlations of the proposed employee vitality scales with the passive performance and health indicators to determine the discriminant character of employee vitality (*discriminant validity*). Last, we examined whether employee vitality scales actually measure a construct that would make a positive difference with regard to organizational effectiveness (*predictive validity*).

Factorial Validity

Table 4-4 depicts the results for an exploratory factor analysis with varimax rotation. Included are the items for job proactivity, developmental proactivity, availability of energy and willingness to invest energy at the individual level. As expected, four factors were extracted from the solution accounting for 54.1% in the variance and eigenvalues exceeding 1.00. The loadings for the four constructs approximated a simple structure, with all cross loadings below .40. As such, the factor analyses suggest that proactivity towards the job and development are distinctive constructs. Items for availability of energy and willingness to invest energy are factorially distinctive as well.

Table 4-4: Factor loadings for principal factor analysis - varimax rotation

Items	Factors			
	F1	F2	F3	F4
Job Proactivity				
In my work, I make suggestions to improve the way we work	.792			
When work methods or procedures are not effective, I try to do something about it	.788			
I discuss work methods with my supervisor, when I think they could be improved	.773			
When something is not right in the way the work is done around here, I try to improve it	.711			
In my work, I take initiative even when others don't	.590			
Availability of Energy				
During my work I feel fit		.822		
At my work, I feel bursting with energy		.724		
At the beginning of a working day I have plenty of energy		.692		
By the end of the working day I can still adequately concentrate on my work		.625		
The last part of my working day just flies by		.549		
Developmental Proactivity				
In my work, I keep trying to learn new things			.708	
I think about how I can keep doing a good job in the future			.668	
In my work, I search for people of whom I can learn something			.645	
I see to it that, with regard to my skills and knowledge, I can cope with changes in my work			.632	
In my work, I set myself challenging goals			.578	
Willingness to Invest Energy				
After five years, I've seen it all as far as this job is concerned **(r)**				.700
I do my work because I have to, and that says it all **(r)**				.673
I have to continually overcome my resistance in order to do my work **(r)**				.662
The thought that I will have to do this job until I retire is very oppressive **(r)**				.636
Initial Eigenvalues	*6.33*	*2.58*	*1.63*	*1.53*
% of Variance explained	*33.34*	*13.59*	*8.55*	*8.07*

Note: n = 736; (r) = Items Reverse Coded; Loadings < .40 were suppressed and are not shown

Table 4-5 shows the descriptives and reliabilities for the four employee vitality scales. In all cases, Chronbach's alpha fell between .80 and .90 which is considered to constitute adequate scale reliabilities (Nunnally, 1978).

Table 4-5: Scale Descriptives & Reliability Indices

Scales	Descriptives					
	# Items	Range	Mean	SD	α	N
Job Proactivity	5	1-5	3.80	.57	.88	736
Developmental Proactivity	5	1-5	3.86	.50	.82	736
Availability of Energy	5	1-4	2.88	.53	.84	736
Willingness to Invest Effort	4	1-5	3.77	.82	.80	736

Scale relationships

Table 4-6 depicts the correlations between the four scales covering the vitality dimensions and the covariates. The results indicate that all four vitality dimensions are moderately correlated. The highest correlations are between job proactivity and developmental proactivity (r = .49; p < .01) and energy at work and willingness to invest (r = .45; p < .01). With availability of energy, job proactivity shows a light moderate correlation (r = .30; p < .01) as does developmental proactivity (r = .32; p < .01). With the willingness to invest energy, job proactivity shows a light moderate correlation (r = .31; p < .01) as does developmental proactivity (r = .32; p < .01). All in all, the scale correlations covering the proposed employee vitality dimensions show the expected moderate-sized correlations, which indicates separate though interrelated constructs.

Looking at the correlations between the vitality measures and covariates, the same Table shows that job type, gender, age and education have no strong relationships with employee proactivity. For employee vigour, age has a more stronger positive relationship with the availability of energy (r = .21; p < .01) and the willingness to invest energy (r = .30; p < .01). But overall, the correlation matrix depicts small-sized correlations between the covariates and the vitality measures.

Table 4-6: Correlation Matrix of Major Variables and covariates (n = 736)

	N	1	2	3	4	5	6	7	8	9
1 Job Proactivity	736									
2 Developmental Proactivity	736	.49**								
3 Availability of Energy	736	.30**	.32**							
4 Willingness to Invest Energy	736	.31**	.32**	.45**						
5 Job Type (1 = Blue Collar)	736	-.07	-.12**	-.05	-.22**					
6 Job Type (1 = White Collar)	736	.03	.05	.07	.07	-.54**				
7 Job Type (1 = Pink Collar)	736	.05	.07	-.02	.16**	-.52**	-.45**			
8 Gender (1 = Male)	726	.07	.04	-.03	-.10**	.32**	.01	-.35**		
9 Education (1 – 6 = High)	724	.07	.13**	-.10**	.02	-.44**	.23**	.24**	-.06	
10 Age	713	.15**	-.02	.21**	.30**	-.01	.05	-.03	.07	-.23**

Note: * p < .05; ** p < .01

Dimensional validity

Furthermore, with regard to the dimensional validity, it becomes clear from the correlations between the four vitality dimensions (as shown in Table 4-6) that the relationship between the two proactivity scales is the strongest. The same applies to the relationship between the two vigour scales. However, to examine the shared contributions of the four scales with regard to a higher order vitality construct, Table 4-7 shows whether the employee proactivity and vigour scales constitute a similar or a different higher order structure. The second-order factor analysis including four vitality scales supported a shared higher order construct, while it extracted only one factor accounting for 52% of the scale variance.

Table 4-7: Unrotated Second-order Factor Analysis – vitality scales only (n= 736)

Scales	Factor 1
Developmental Proactivity	.637
Job Proactivity	.612
Willingness to Invest Energy	.588
Availability of Energy	.580
Eigenvalue	*2.095*
% Variance explained	*52.37*

Discriminant validity

To determine whether the vitality scales are actually distinct from "traditional" passive performance and health indicators, we included four extra scales in the correlation matrix (see Table 4-8).

Table 4-8: Correlation Matrix of active and passive scales (n = 736 – n = 371)

	N	1	2	3	4	5	6	7
1 Job Proactivity	736							
2 Developmental Proactivity	736	.49**						
3 Availability of Energy	736	.30**	.32**					
4 Willingness to Invest Energy	736	.31**	.32**	.45**				
5 Work-related Fatigue	736	-.05	-.09*	-.38**	-.24**			
6 Work-related Worrying	447	.07	.08	-.11*	.03	.37**		
7 Job Satisfaction	441	.06	.23**	.32**	.47**	-.26**	.05	
8 Organizational Commitment	371	.17**	.34**	.34**	.36**	-.14**	.02	.52**

Note: * p < .05; ** p < .01

As shown in Table 4-8, job proactivity shows no or, in the case of organizational commitment (r = .32; p < .01), only a small significant correlation with the traditional passive scales. Developmental proactivity shows a higher correlation with organizational commitment (r = .34; p < .01) and job satisfaction (r = .23; p < .01). Overall, the proactivity scales seem to adequately differentiate from both the passive performance and health indicators. For availability of energy and willingness to invest energy we observe a less distinctive correlational pattern. Availability of energy correlates moderately with work-related fatigue (r = -.38; p < .001) and lower with work-related worrying (r = -.11; p < .05). It also shows medium-sized correlations with organizational commitment (r = .34; p < .01) and job satisfaction (r = .32; p < .01). Otherwise, the willingness to invest energy shows less strong relationships with work-related fatigue (r = -.24; p < .01) and no significant relationship with work-related worrying.

However, both organizational commitment (r = .36; p < .01) and job satisfaction (r = .47; p < .01) seem to relate more strongly to willingness to invest energy. With each other, the two passive performance scales show a strong significant correlation (r = .52; p < .01); just like the two passive health scales that show a medium-sized correlation (r = .37; p < .01). As can be read from the number of respondents for each scale in Table 4-8, we were somewhat restricted in the collection of data for our passive indicators. Because we could not include these scales in all of the distributed surveys, sample sizes are smaller for the passive indicators.

To control for possible sample biases we repeated the correlation analysis (not shown here), now for a subsample of 363 employees which represents the sample size in which the distributed survey included all eight scales. Although, in general, the size of the correlations somewhat dropped, the correlational pattern did not reveal any major deviations from the initial correlation matrix in Table 4-8. This indicates that the initial correlations in Table 4-8 were not distorted due to different sample sizes.

Table 4-9: Second-order Factor Analysis - varimax rotation– all scales (n = 363) *

Scales	Factors		
	F1	F2	F3
Job Satisfaction	.875		
Organizational Commitment	.587		
Willingness to Invest Energy	.542	**.309**	
Job Proactivity		**.756**	
Developmental Proactivity		**.627**	
Availability of Energy	.366	**.407**	-.354
Work-related Fatigue			.834
Work-related Worrying			.425
Eigenvalues	*2.777*	*1.462*	*1.104*
% variance explained	*34.71*	*18.28*	*13.80*

* Note: Loadings < .30 were suppressed and are not shown

Additionally, to examine if the employee vitality scales were factorially distinct from traditional passive indicators, a second-order factor analysis was conducted. As shown in Table 4-9, three factors were extracted, which show that the passive concepts of *satisfaction/commitment* and *fatigue/worrying* loaded on the first and third factor. The two proactivity scales loaded on the second factor. With regard to the employee vigour scales, the analysis showed less clear factor loadings. Here, the scale for willingness to invest energy constituted higher loadings on the first (satisfaction/commitment) factor. The scale for availability of energy also processed small cross loadings on the first (satisfaction/commitment) and the third (fatigue/worrying) factor. Overall, the second-order factor analysis shows that the vitality scales somewhat "squeeze" in between the traditional passive performance and health indicators. All in all, the correlation matrices and the second-order factor analyses show a slight discriminant pattern between the vitality scales and the traditional passive indicators. However, for the two employee vigour scales the difference with the proposed passive performance and health scales is less salient. The moderate correlations between job and developmental proactivity, availability of energy and willingness to invest energy and the lower correlations of both proactivity scales with all of the passive scales suggests that employee vigour and proactivity have more in common than both dimensions do with the passive scales.

For the remaining correlations between vigour and the passive performance and health indicators, the second-order factor analysis indicates that although there is some overlap with the passive indicators, the two vigour scales do relate to the proactivity scales which tap the active performance dimension.

Table 4-10: Independent Sample T-Test for Employee Vitality and Work Unit Performance

		Work Unit Performance			
Scales		**Lower**	**Higher**	**T-value**	**Sig**
Job Proactivity	**Mean**	**3.84**	**4.05**	3.345	**
	SD	.61	.56		
	n	*284*	*140*		
Developmental Proactivity	**Mean**	**3.80**	**3.94**	2.684	**
	SD	.53	.51		
	n	*284*	*140*		
Availability of Energy	**Mean**	**2.84**	**2.89**	.961	n.s.
	SD	.56	.53		
	n	*284*	*140*		
Willingness to Invest Effort	**Mean**	**3.60**	**3.97**	4.467	**
	SD	.90	.74		
	n	*284*	*140*		
Work-related Fatigue	**Mean**	**1.87**	**1.85**	-.355	n.s.
	SD	.53	.55		
	n	*284*	*140*		
Work-related Worrying	**Mean**	**1.66**	**1.89**	2.782	**
	SD	.51	.56		
	n	*114*	*59*		
Job Satisfaction	**Mean**	**3.91**	**3.97**	.674	n.s.
	SD	.51	.52		
	n	*111*	*59*		
Organizational Commitment	**Mean**	**3.36**	**3.47**	1.233	n.s.
	SD	.57	.56		
	n	*114*	*59*		

Note: * p < .05; ** p < .01; n.s. = non-significant

Predictive validity

Last, Table 4-10 shows the results of a simple T-test on the group means of employees working in lower and high performing work units. The goal was to provide some insight in the propositions concerning the relevance of employee proactivity and vigour for performance in a modern day work context. Table 4-10 shows the mean differences for the four employee vitality dimensions and the passive indicators. Results indicate that for job proactivity (t = 3.345; p < .01), developmental proactivity (t = 2.684; p < .01) and willingness to invest energy (t = 4.467; p < .001), there is a significant difference between employees working in lower and higher performing work units. As the three vitality scale means are greater in highly effective work units it confirms that employee vitality makes sense with regard to higher overall organizational effectiveness. The *availability of energy*-scale did not show any significant difference. For the passive indicators, the results show that employees in highly effective work units also score significantly higher on work-related worrying (t = 2.782; p < .01). For the other indicators we found no significant differences.

4.6 CHAPTER CONCLUSIONS AND NEXT CHAPTER

The goal of this chapter and the former chapter was to understand and validate the conceptual aspects of employee vitality as an "active" performance and well-being concept. As it was argued that "passive" job satisfaction, organizational commitment or job strain are possibly less likely to grasp the characteristics of a modern effective workforce (Parker, 2000; Guest, 2002, Frese & Fay, 2001; Fay & Kamps, 2006), this chapter looked into the conceptual specifics and relationships between four employee vitality scales and the passive employee attributes. In chapter 3, we proposed that vital employees (characterized by high levels of proactivity and vigour) will expend a more endurable and dynamic type of work effort that could differentiate between high and low employee and work unit performance. Drawing on these theoretical propositions, in this chapter, the conceptual specifics of employee vitality were further operationalized in order to measure and validate them. For this we created new items and used other existing scale items to measure four dimensions of employee vitality: employee proactivity towards the job and self-development; and the availability of energy and willingness to expend energy. In testing the hypotheses with regard to the quality and validity of the vitality items

among 736 employees of 13 organizations from different sectors, the following became clear:

- First, as expected the employee vitality items loaded on four factors which resembled the vitality dimensions that were drawn from theory. The items were factorially distinct from each other and as four separate scales they showed good reliabilities. This means that the basic psychometric properties for measures of the four vitality dimensions were in tact. This confirms *hypotheses 1a and 1b*.

- Second, the four scales showed moderate correlations with each other and, as was expected, both the two proactivity dimensions and the two vigour dimensions were slightly stronger related. So, between the vitality scales we found the expected discrepancies but also the expected medium-sized correlations. Additionally, in a second order factor analysis, only one factor was extracted depicting the shared variance of the four vitality scales and the plausibility of a single underlying construct. This confirms *hypothesis 2, 3a* and *3b*.

- Third, when examining the discriminant validity by including passive performance/attitudinal and health indicators, the results for *job proactivity* show a distinct correlation pattern with regard to their relationship with the more traditional outcomes of job satisfaction and organizational commitment. This result follows the findings of Parker (2000) and Parker et al., (2006) who found that employee proactivity measures were factorially distinct from job satisfaction, organizational commitment, OCB and job strain. The somewhat stronger significant relationships between *developmental proactivity* and job satisfaction/commitment would suggest that there is a relationship between actively obtaining future skills and knowledge and the commitment one feels to the organization. This connects to human capital theory basics (Becker, 1964) which assumes that employee investments in acquiring firm-specific skills also strengthens the commitment to the organization to gain (future) returns on the personal investments made – as they are of less value outside of the organization. At first sight, the correlations between the employee vigour scales and passive health indicators do not reveal a clear correlational pattern.

As could be expected, there is a significant negative relationship between the extent to which an employee has *energy available* and experiencing *work-related fatigue*. However, as the two concepts would seem very direct opposites of each other on a underlying bipolar dimension, the correlation between the scales is only moderate in size. This could indicate that the availability of energy and fatigue are conceptually different, which has also been found in a study by Schaufeli and Bakker (2004).

- Fourth, the correlations between the two vigour scales and job satisfaction/commitment also show higher correlations. This indicates some conceptual overlap between feeling vigorous, and having affective attitudes towards the job and organization. This is consistent with Hallberg and Schaufeli's (2006) study on the well-tested concept of work engagement (which consists of feeling vigourous *and* dedicated) in relation to organizational commitment, which they find to be closely related to each other. However, an overall conclusion on the difference between the vitality scales and the passive scales is that the high correlations between employee proactivity and vigour, were not found between employee proactivity and satisfaction/commitment and fatigue/worrying. This partly validates that employee vigour is more akin to employee proactivity. An additional second-order factor analysis of the vitality scales and the passive indicators, also reveal the contours of employee vitality as being conceptually "squeezed" in between the more affective attitudinal domain and health-oriented domain of fatigue and worrying. So there is some slight evidence for employee vitality scales being different from the passive indicators which would confirm *hypothesis 4*.

- Last, to make some inferences with regard to the value of vital employees for organizational effectiveness, employees were divided into two groups based on the general effectiveness of the department/work unit they work in. Here, it became clear that employees working in the top 35% of effective work units showed higher proactivity and willingness to invest energy than employees working in less effective work units. In contrast, there were no significant differences for 3 of the 4 passive indicators (satisfaction, commitment and fatigue). To a large extent it confirms *hypothesis 5*.

In a simplified graph, Figure 4-1 summarizes the findings in this study with regard to the concept of employee vitality. The proposition underlying this graph is that in the context of identifying the employee that "has got what it takes", it makes more sense to focus on vigourous and proactive employees than on *not un*healthy, committed and satisfied employees – although these characteristics do not mutually exclude each other.

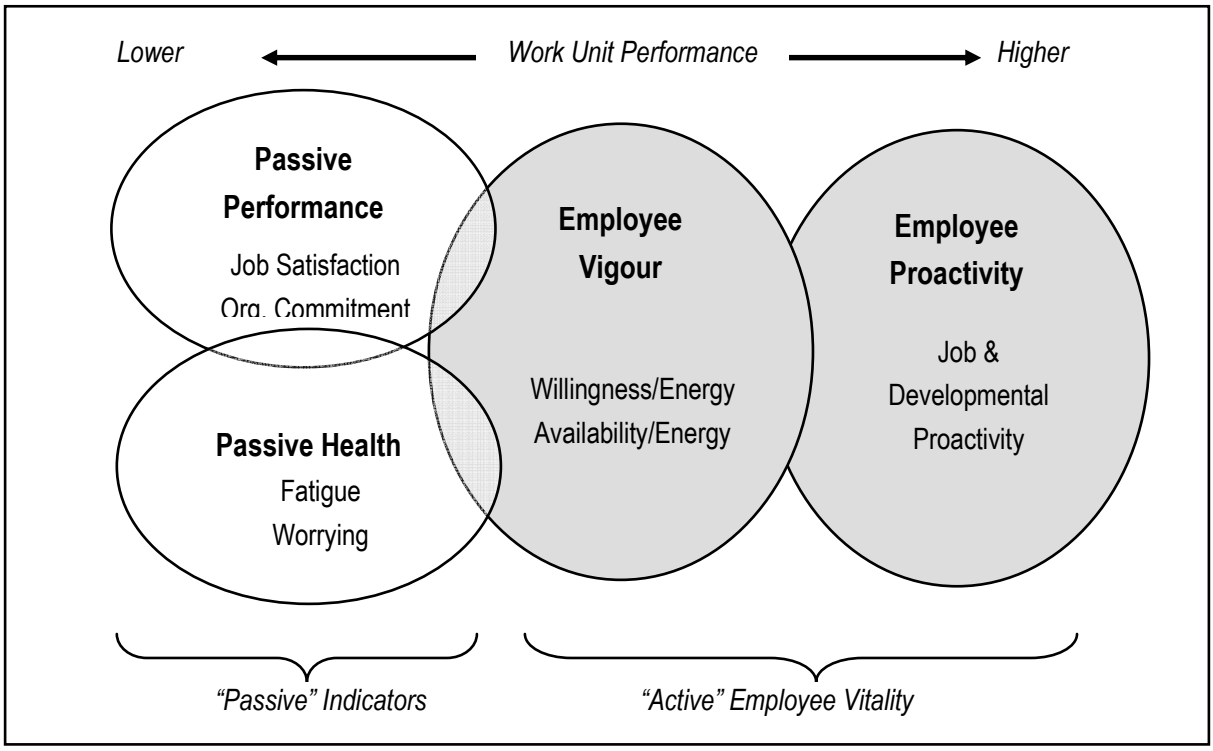


Figure 4-1: Summarizing overview of validity aspects concerning employee vitality

4.6.1. Next Chapter

All in all, to a great extent the findings in this chapter support the further use of the employee vitality scales to measure an "active" type of discretionary effort construct. Being the central construct in exploring the possibility of managing well-being *and* performance, the following two chapters will more specifically aim at the identification, measurement and validation of manageable work and organizational factors in a high performance work systems framework. The contribution of this chapter to the overall research framework is depicted by the grey boxes and black arrows in Figure 4-2.

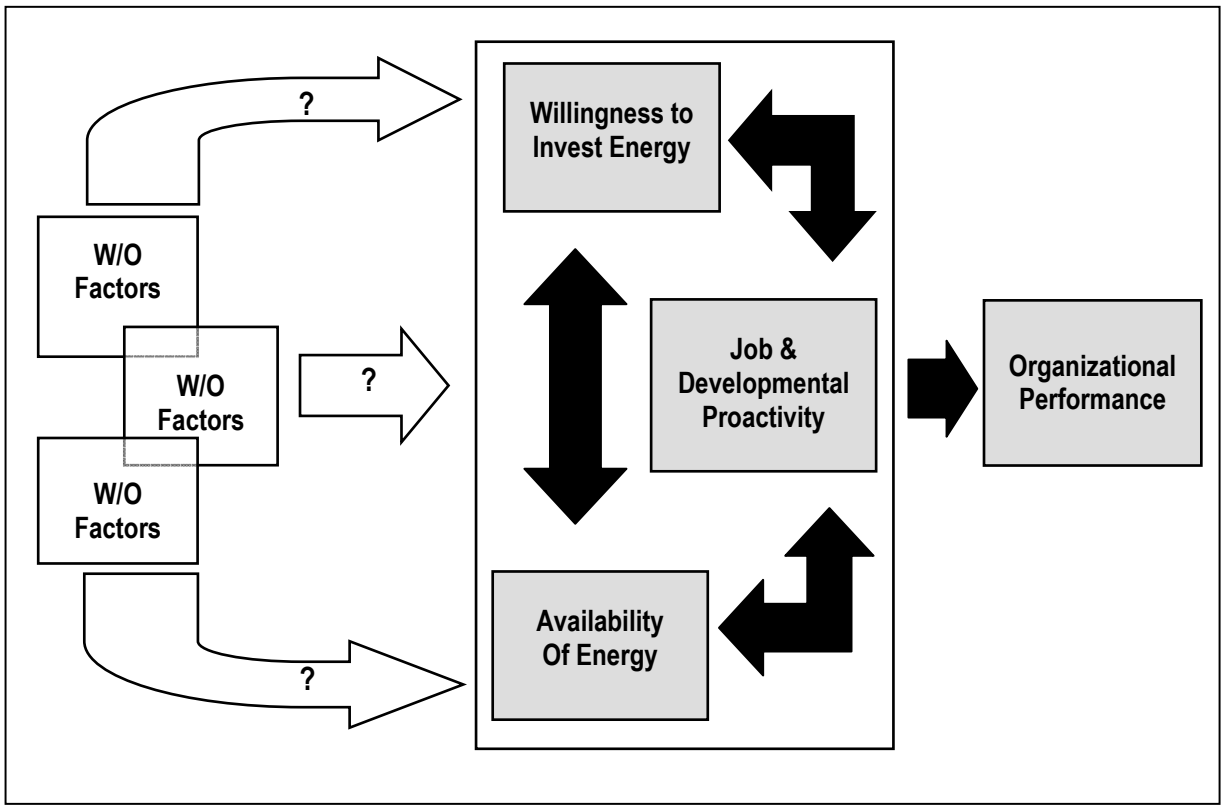


Figure 4-2: This Chapter's Contribution to the overall Research Framework

Chapter 5

Identifying and measuring High Performance Work Practices: theoretical and methodological issues [7]

5.1 INTRODUCTION

Having conceptualized employee vitality as the key construct that signifies an "active" employee attribute which relates to the ability of organizations to obtain their performance goals while sustaining employee health, this chapter aims at identifying and measuring the work and organizational determinants of employee vitality. Specifically, we elaborate on the specifics of an organizational-level high performance work systems framework (e.g., Delery & Shaw, 2001; Huselid, 1995; Appelbaum et al., 2000; Datta, Guthrie & Wright, 2005; Sun, Aryee & Law, 2007). In examining the link between the management of labour inputs and their performance/productivity outputs, much of contemporary literature refers to *High Performance HRM* or *High Performance Work Systems* (HPWSs) as a distinctive approach to managing human resource inputs towards valuable organizational outputs. Central to HPWSs is the notion of "people" as an important asset or source of competitive advantage, rather than a cost to be minimized (Becker & Gerhart, 1996; Wood, 1999). Subsequently, HRM practices that improve the organization's attraction, development and motivation of a unique, inimitable and non-substitutable human resource pool would combine into a system that more directly

[7] A part of this chapter was based on an earlier version of a paper by Dorenbosch, L.W. & Van Veldhoven, M.J.P.M. (2006) Rethinking HRM practices measurement. A classification of choices for researchers. Paper presented at the EIASM 21st Workshop Strategic Human Resource Management, Aston University. Birmingham, UK.

contributes to the organization's success through people (Wright and Boswell, 2002). So far, empirical results show that organizations that systematically adopt an internally consistent set of High Performance work Practices (HPWPs) have been found to generate greater labour productivity (Huselid, 1995; Datta et al., 2005; Ichniowski, Shaw & Prennushi, 1997; Sun et al., 2007), financial firm performance (Huselid, 1995; Guest, Michie & Sheehan, 2003) or other indicators of firm effectiveness (e.g., profitability, market growth, sales; see Boselie, Dietz & Boon, 2005 for an overview). A recent meta-analysis (Combs, Liu, Hall & Ketchen, 2006) on the HPWS-organizational performance linkage, including 92 studies, further justified the positive relationships between HPWS and various indicators of firm performance. However, despite the large body of research on the link between HRM interventions and some indicator of organizational performance, less is empirically known about the intermediating mechanisms and variables that could explain how employees are impacted and how employees productively react to HPWS (Boselie et al., 2005; Wall & Wood, 2005). Consequently, a newer stream of research has begun to examine possible contents of the so-called "black box" between HRM interventions and performance outcomes. This has led researchers to apply a multitude of existing psychological (e.g., attribution-theory), sociological (e.g., social capital theory) or economic theories (e.g. human capital theory) and related advanced statistical techniques to understand the way employee skills, attitudes and behaviour are affected by HRM and, in turn, are either beneficial or counterproductive for organizations (for a good overview see Lepak, Takeuchi, Erherdt & Colakoglu, 2006). Connected to this emerging stream of research on opening the "black box", this dissertation focuses on *employee vitality* as an intermediating mechanism between HRM interventions and endurable organizational performance.

5.1.1 Goal of this chapter

The intervention-based HPWS literature typically involves the study of specific HRM interventions or work practices (e.g. functional training, career development, performance appraisal) of which the adoption would affect organizational performance. To provide more background on the features of HPWS, this chapter addresses both the theoretical features and the methodological issues underlying HPWS-performance research. Firstly, we elaborate on the contours of the HPWS framework. Secondly, this chapter presents possible choices with regard to the measurement of high performance work practices (HPWPs) as there is no real

consensus among researchers on HPWPs measurement (Boselie et al., 2005; Wood & Wall, 2005). In line with the work of Gerhart,, Wright, McMahan and Snell (2000), we argue that to adequately study the effects of HPWPs on employee outcomes, there is (1) a need to carefully choose and conceptualize the specifics of the independent HPWPs and (2) the need to make adequate decisions in the research design with regard to the level of analysis and who rates the "objective" work practices. As such, this theoretical and methodological background links to the actual measurement and validation of HPWPs in the next chapter.

5.2 A HIGH PERFORMANCE WORK SYSTEMS FRAMEWORK

Research on the performance effects of the adoption of HPWSs have proposed different ways through which work and HRM practices could affect organizational performance. This is not surprising given the various academic disciplines in which HPWSs are studied, on various levels of analysis focusing on various performance indicators. As a framework, HPWS thinking differs from prescriptive, normative models of work and organizational interventions (Guest, 1997) which claim to be a "best practice" or "best system" with regard to organizational performance. Rather, than running the risk of becoming a "management fad", the HPWS perspective provides a theoretical skeletal framework (Purcell et al., 2003) in order to study the organizational performance effects of combinations of workplace, HR management and/or labour relation interventions. In the diversity of ways scholars have addressed and studied HPWS (see Boselie et al., 2005 for an overview) three key features of a HPWS framework underlie the majority of HPWS studies.

Feature #1: Emphasis on High Performance Outcomes

A key feature of HPWS research is the focus on an outcome that is directly meaningful and of critical importance to the organization's or organizational unit's viability and sustained competitiveness (Boxall & Purcell, 2003). This directly raises questions with regard to which outcomes can be considered meaningful and critical. Studies have included a broad range of financial, market, operational or social performance outcomes which could be meaningful and critical to organizational success. From a HPWS perspective, the criterion problem does not have to be a problem *per se*, as long as it can be argued why the inclusion of certain performance outcomes would be meaningful and critical to the organization's viability (also with

regard to organizations in a specific branche/industry). However, what *is* argued to be important in the choice of the studied performance outcome(s), is the expectation that work related aspects in one way or another can explain variance in these "high" performance outcomes. In chapter 2 we already addressed this when defining cost-effective labour productivity as a proximal organizational outcome rather than a distal performance outcome which are likely to be also influenced by non-labour related organizational aspects. Another aspect is the choice of the appropriate level of analysis to examine performance outcomes. Also this varies across studies which have included HPWS relationships with performance at the company level (Huselid, 1995), at the establishment level (Capelli & Neumark, 2001), at a plant level (Appelbaum et al., 2000), but also at the individual level (Zacharatos, Barling & Iverson, 2005). Practically, studies including performance indicators at each of these levels generate their own possibilities to include specific work-related or more business broad performance measures, objective or subjective performance measures via manager, peer or employee (self-) reports of performance.

Feature #2: Emphasis on Intermediary Performance Mechanisms

In Chapter 2, we described several "passive" employee well-being mechanisms through which work and organizational factors could impact organizational performance outcomes. However, in reaction to the lack of strong findings which support employee job satisfaction, organizational commitment or job strain as intermediary variables (as assumed in job redesign and high commitment HRM models), HPWS models have been focusing on other, more economic and/or behavioural, performance mechanisms to look inside the 'black box". Although the terms high commitment/involvement HRM and HPWSs have frequently been used interchangeably, Wood (1999b) observes that HPWSs "broaden the focus away from employee attitudes and commitment, so that such factors as skill formation, work structuring, performance management and pay satisfaction are included in the list of mechanisms through which HR practices may impact upon performance" (p. 371). More strongly, Eileen Appelbaum, as one of the leading scholars in this domain, explicitly emphasizes the differences between HPWS perspective and high commitment/involvement HRM models by stating the following:

> 'Unlike past attempts to humanize work or improve the quality of work life, these [HPW] practices are not designed with the goal of increasing worker control or autonomy or job

> satisfaction. Whether these practices result in such worker outcomes is an empirical question, but achieving these outcomes is not management's primary motive' (Appelbaum, 2002; p. 121).

Instead, more direct attention is placed on employee expenditure of discretionary effort that contributes to the performance outcomes under study. Consequently, several operationalizations of such discretionary effort have been theorized to function as intermediary employee performance mechanisms – although not always directly measured. Those HPWS studies that did include direct measures of effective discretionary effort, have examined a broad range of variables like *human resource flexibility* (Beltran-Martin et al, 2008), *inter-organizational knowledge transfer* (Kase, 2007), *organizational citizenship behaviours* (Sun et al., 2007), *employee cooperation* (Lambooij, Koster, Sanders & Zwier, 2006; Horgan, 2003) and employee *problem-solving*, *skill usage* (Morgeson, Johnson, Campion, Medsker & Mumford, 2006). In sum, a HPWS perspective does not prescribe the type of discretionary effort that would promote performance. However, to the backdrop of certain contingencies (e.g., strategy, technology, type of industry) and a particular high performance indicator, it is considered more appropriate to include those discretionary behaviours that are meaningful with regard to the context or indicator of interest.

Feature #3: Emphasis on a System of Work/Organizational Interventions

Illustrative for a HPWS framework is the examination of the organizational performance effects of *multiple* work and organizational interventions (Wright & Boswell, 2002). HPWS studies have included the combined effect of practices with regard to the way work is designed and organized (e.g., teamwork, feedback, participation, job descriptions), the HRM practices governing aspects of the employment relationship (e.g., incentive pay, job security, promotion opportunities) and the quality of the workforce (e.g., recruitment, selection, training and development) (Parker & Turner, 2002; Gospel in Boxall & Purcell, 2003). Examining a collective or bundle of work and organizational practices reflects the systems view, based on the argument that 'some combination of HRM practices have advantages above and beyond the careful application of specific [HR] techniques such as sophisticated selection, pay, training or job design' (Guest, Conway & Dewe, 2004, p. 79). Similarly, Ichniowski et al. (1997) pointed out that when examining practices separately this carries the implicit assumption that effects of HR decisions are

additive. And yet HRM practices are interrelated and should interact or work together in achieving their effects; therefore, investigation of the effects of individual HR practices is incomplete, and erroneous conclusions may be drawn. While there is still much debate on which combined work and organizational practices would positively relate to organizational performance, a frequently used rationale to underpin the choice for HPWS is the AMO theory of performance (Blumberg & Pringle, 1982; Campbell, 1999; Appelbaum et al., 2000; Delery & Shaw, 2002; Boxall & Purcell, 2003). The theory predicts that people expend certain discretionary effort when they have the (A)bility to do so, when they are (M)otivated to do so, and when work environment provides the (O)pportunity to do so (in Boxall & Purcell, 2003). As a system of HPWS all three AMO categories should be simultaneously enhanced in order to be effective. As Wall and Wood (2005) put it: 'selecting able people without training them, or training employees but not motivating and empowering them to use that training, will have little effect; whereas implementing these practices together will'. Using this AMO rubric as a 'skeletal structure for HRM' (Boxall & Purcell, 2003), moves away from explicitly identifying best practices that always outperform others. Instead, the AMO rubric forms generic principles for HR policy and practice determination (Purcell et al., 2003), which allows for a variety of work and organizational practices and procedures (that fit the three AMO categories) to affect organizational performance. In other words, in a HPWS framework each type of effective discretionary effort can be predicted by an idiosyncratic system of work and organizational practices under the condition that the work practices are meaningful and critical to the ability, motivation *and* opportunity to expend the type of discretionary effort of interest. For example, HPWPs that enhance the ability, motivation and opportunity of employees to develop new product innovations do not need to be the same set of HPWPs that are likely to enhance customer service quality.

5.2.1 Employee Vitality in HPWS framework

Applying the key features of a HPWS framework to employee vitality, the goal is to identify that combination of HWPS practices that would reinforce each other into stimulating employee vigour and proactivity. As already described in Chapter 3, and other than Appelbaum (2002) suggests, we do regard "active" well-being and health integral to an "active" performance mechanism between HPWSs and organizational performance. This makes vitality a discretionary workforce characteristic, which

enables employees to perform in a modern work arena (Fay & Kamps, 2006). To adequately examine the impact of a HPWS on employee vitality, the following section will look into HPWS measurement issues, building towards the adequate measurement of meaningful and critical HPWS practices in this dissertation study.

5.3 MEASUREMENT ISSUES IN A HPWS FRAMEWORK

Theoretically, with the growing number of HPWS-performance studies, substantial advancements have been made with regard to the integration of performance theories into organizational and workplace models of intervention. A recent overview by Boselie et al. (2005) of 104 empirical HRM–performance studies published between 1994 and 2003, shows that the majority of studies define HRM/HPWS with regard to what organizations *do* in terms of HRM policies, practices, procedures or techniques (see also Becker & Gerhart, 1996). Only a minority focuses on for instance the effectiveness of the HR department/managers (Huselid, Jackson & Schuler, 1998; Tsui, 1990) or the "strength" of an HRM system (Bowen & Ostroff, 2004) in terms of HR activities being clear, consistent and uniformly applied. Hence, HRM interventions on multiple domains like staffing, training and pay remain to be the focal aim and core concepts that make up the organization's HPWS. Although this so-called content approach to HRM (discriminating between HRM configurations on the basis of *what* is done) underlies much of the research models in HPWS-performance literature, reliable and valid measurement of the single high performance work practices (HPWPs) and its composite HPWS system measures remain a central issue in current methodological debates (see Becker & Gerhart, 1996; Delery, 1998; Gerhart, Wright and McMahan, 2000; Huselid & Becker, 2000; Kepes & Delery, 2005; Gerhart, 2007).

Methodologically, reliable and valid measurement of HPWPs can be considered top priority in making adequate inferences from empirical results in HPWS-performance research. With regard to two theoretical developments (content and level of analysis) in HPWP construct specification, Gerhart and colleagues (2000) and Huselid and Becker (2000) debated several sources of measurement error in HPWS-performance research due to (a) the items used to measure the HPWP content and (b) the raters used that provide the information at a certain level of analysis. Consequently, Gerhart et al. (2000) conclude that HPWS studies contain a great deal of measurement unreliability due to the items included and the type of raters of

HPWP items. According to Gerhart and colleagues this means that the found effect size estimates of the relationship between HPWS and performance outcomes so far, should be interpreted with great caution. In other words, although theoretical advancements have been made and recognized by a number of HR researchers, substantial flaws in the way HPWPs are measured can have major implications for the validity and conclusions that are drawn from HPWS-performance studies conducted so far. Taken together, the methodological concerns issued by Gerhart and colleagues with regard to the measurement of HPWPs can be categorized as (1) *HPWP-specific measurement issues* and (2) entwined *research design-specific issues*. With the goal of this chapter to systematically address the current theoretical *and* measurement issues in a HPWS framework, the next section will elaborate on the type of questions scholars face with regard to the measurement of HPWS.

Figure 5-1 depicts a graphical overview of measurement issues with regard to HPWPs. As shown, this chapter will focus on six different measurement considerations with respect to either *HPWP-specific measurement issues* or *research design-specific measurement issues.*

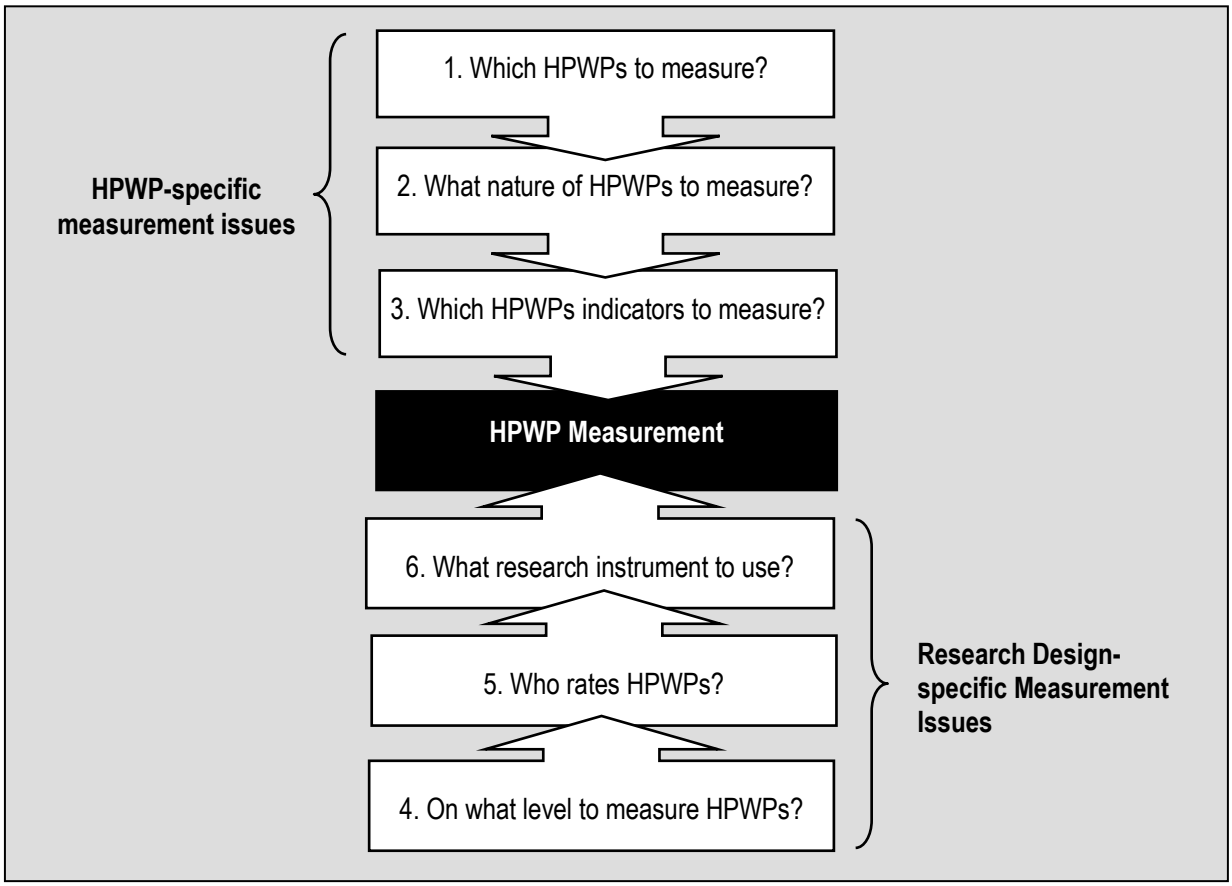


Figure 5-1: Overview of HPWP Measurement Issues

5.3.1 HPWP-specific measurement issues

Issue #1: Which HPWPs to measure?

As already discussed, the first basic researcher's question of which HPWPs to measure, is largely theory-based with regard to the ability, motivation and opportunity to expend the intermediary discretionary effort of interest. Following this skeletal AMO framework, both Wall and Wood (2005) and Boselie et al. (2005) conclude on the basis of an overview of empirical HRM research there is a growing consensus among HRM researchers on which type of interventions to measure. Classified under either influencing workforce ability, (extrinsic) motivation and opportunity, Table 5-1 shows which top 10 of HPWPs have been most included in 103 HPWS-performance studies between 1994-2003 (in Boselie et al., 2005). Additionally, based Combs et al.'s (2006) meta-analysis including 93 HPWS-performance studies, Table 5-1 also includes which single HPWPs domains have been found to be directly related or unrelated to organizational performance. When comparing the findings of Boselie et al. (2005) and Combs et al. (2006) three things become apparent. First, both studies, independently identified similar domains of interventions that past research have included as HPWPs. This supports the growing consensus on which HWPS domains should be examined in a HWPS framework. Second, the type of HPWPs in the top 10 of most included HPWPs can be categorized in line with the AMO structure. As such, HPWPs focus on:

(1) attracting, selecting, training and developing an able workforce,
(2) appraising, paying and promoting to motivate employees and
(3) the employee opportunity to perform through team working, collaboration, communication, information sharing en enriched job design.

Third, Combs and colleagues' meta-analysis shows that not all HPWPs domains relate directly to organizational performance outcomes. For instance, adopting performance appraisals, team working and communication/ information sharing were found to be unrelated to organizational performance. Does this mean they should be excluded from a HPWS framework? If it is expected that effective discretionary behaviour intermediates the relationship between HPWS and organizational performance, Baron and Kenny's (1986) law of testing intermediating effects states that in the first place there should be a relationship between the

independent (HPWS) variable and the dependent (performance) variable. However, on the basis of content, it could also be that the effectiveness of these independent HPWPs rely on the specific *nature* of these practices.

Table 5-1: Most included HPWPs and relationship with performance *

AMO category	Most Included HPWPs in Research	Rank	Relationship with organizational Performance?
Ability	Training & Development	#1	Yes
	Recruitment and selection	#4	Yes
Motivation	Contingent pay and rewards	#2	Yes
	Performance management/ appraisal	#3	*No*
	"Good" (Above-Market) Wages	#7	Yes
	Internal promotion opportunities	#9	Yes
Opportunity	Teamworking and collaboration	#5	*No*
	Direct participation	#6	Yes
	Communication / information sharing	#8	*No*
	Enriched Job design	#10	?(not included)
Other	HR (Career/Succession) Planning	#15	Yes
	Flextime/Work-Life Balance	#23	Yes
	Grievance Procedures	#14	Yes
	Employment Security	#12	Yes

* Note: Based on Boselie et al. (2005) and Combs et al. (2006)

Issue #2: What nature of HPWPs to measure?

Choices on the nature of HPWPs to measure, concern choices with regard to the level of abstraction or construct specificity. In line with the work of Becker and Gerhart (1996), different levels of abstraction can be formulated that result in different perspectives on the nature of HRM practices. For instance, Becker and Gerhart (1996), Wright and Gardner (2003), Guest, Conway and Dewe (2004), Kepes and Delery (2006) and Arthur and Boyles (2007) already made useful distinctions between different levels in the HR architecture (although not always alike) that would result in different HPWPs aspects that could be measured. Table 5-2 shows an overview of HPWP measurement at different levels of abstraction.

Table 5-2: HPWP aspects at different levels of abstraction

Level of Abstraction	HR aspects	Example
Very High	HR Principles	Employee performance is highly valued
High	HR Policies	Performance Management
Moderate	HR Practices	Performance Appraisal, Incentive Pay
Low	HR Techniques	Developmental vs. Result-Based Appraisal

The different levels of abstraction in measuring HR aspects make clear that there is a hierarchical order within the HR architecture. This refers to a top-down chain of decision-making in which the choice for a guiding principle like "valuing employee performance" cascades down to (1) matching policy alternatives (e.g. performance management), (2) the actual practices that relate to these policies (performance appraisal) and (3) the exact technique that is used (developmental or results-based appraisal). Following Kepes and Delery (2006) and Becker and Gerhart (1996), the distinctions between the levels of abstraction in measurement are important for two reasons. First, it draws the attention to the complexity of HPWP construct definitions while every separate HPWP domain is layered and consists of multiple components that all could be of interest to the HR researcher.

Second, the distinctions highlight that organizations with the same guiding principles could differ on the basis of their choices in the HR policy domain, just as organizations with similar HR policies could deploy different HR practices and HR techniques. In research, the specification of the level of abstraction of interest is therefore a crucial one. Variance in HPWPs between organizations is likely to increase when adding more specificity to the used measures. In empirical HR research so far, HPWPs have been measured on various levels of abstraction (Boselie et al. 2005), which indicates a diversity of possible interpretations of the nature of these HPWPs. This could however become problematic to further theory testing. Turning back to the first measurement issue, Combs et al's (2006) finding that performance appraisal did not relate to organizational performance, was argued to stem from the study's focus on result-based performance appraisal. In discussing the results, the authors argued that other specific versions of HPWPs like appraisals based on an employee's functional development might matter more to performance outcomes than appraisals solely based on results. Among HR researchers there is some confusion with regard to the term 'HRM practices'. For instance, Wright and

Boswell (2002) label it as the *actual*, *functioning* and *observable* HR activities (and therefore situated on the same level of abstraction as HR techniques/instruments) as opposed to management *intentions* captured in HR policies.

Issue #3: Which HPWP indicators to use?

Another HPWP measurement issue resolves around the scale of measurement (Wright & Gardner, 2003) or HPWP indicators. Other than specifying the nature of HPWPs, indicators refer to the exact information properties of the HPWPs. Over the years, the majority of HPWP studies rely on items measuring whether or not an organization makes use of certain HPWPs (Boselie et al., 2005; Wall & Wood, 2005). One way to measure this is by obtaining information on whether an HPWP is actually *present* ('yes' or 'no'). Another measurement scale that has been frequently used is asking for what proportion of the workforce the HPWP is in use – an indicator of HPWP *coverage*. Both indicators categorize information on the usage of certain HPWPs, of which example items Q1 and Q2 are shown in Table 5-3. Although Boselie et al.'s (2005) overview concludes that the focus on the use of HPWPs is the most common indicator, studies have also included other indicators like intensity or effectiveness. A known problem with indicators of usage is that it produces superficial metrics on HPWPs in practice while general questions and response formats that only allows for answering (yes/no/%coverage) could lead to a unwarranted comparison of HRM practices between organizations and workplaces. For example, Benders. Huijgen and Pekruhl (2001), referring the measurement of group/teamwork, argued that directly asking managers about the incidence of teamwork in their company has 'the disadvantage that respondents may answer based on a different understanding [of teamwork] than the researcher has in mind' (p. 216).

As shown in Table 5-3, measures reflecting the sophistication of an HPWP contain indicators that emphasize the comprehensiveness of the HPWP. Table 2 shows some of the indicators of sophistication that could be distinguished. First, objective measures could rely on the *investments* an organization makes in the practice (*Q3*: number of weeks of training). Other indicators of sophistication could focus on the *involvement* of employees in the execution of the practice. For instance, Benders et al. (2001) measured the intensity of teamwork by specifying the group's decision rights, which refers to the amount of decision latitude in, for instance, the allocation of work, the scheduling of work or the coordination of group tasks (*Q4*).

Table 5-3: Examples of HPWPs indicators

Indicator	Category	Example-items	Response format	Source
Use	Presence	**Q1:** Is there a merit element in staff pay at all levels?	(Yes/No)	Hoque (1999)
	Coverage	**Q2**: What is the proportion of the workforce whose performance appraisals are used to determine their compensation?	Percentage (0-100%)	Huselid (1995)
Sophistication	Investment	***Q3*:** The level of training provided to newly hired production workers, supervisors and engineers in the first six months of employment	0 = up to 1 week, 1 = 1-2 weeks, 2 = 2-4 weeks, 3 = plus 4 weeks	MacDuffie (1995)
	Involvement	**Q4:** Has the management given the formally introduced GROUPS the right to make decisions on how their work is performed on a GROUP basis without reference to an immediate manager for one or more of the following?	- *allocation,* - *scheduling,* - *quality of work* - *time keeping,* - *attendance/ absence control,* - *job rotation,* - *coordination of work* - *improving work processes* At least 4/8 decision rights are assigned to groups = group-based work system	EPOC/ Benders et al. (2001)
	Effort	**Q5:** We have gone to great lengths to establish the best staffing procedure possible..	7-point Likert Scale (1 = totally disagree – 7 = totally agree)	Snell & Dean (1992)
	Frequency	***Q6:*** Promotion rate: how many employees have been promoted in the last year in comparison to the total number of employees?	Total number of yearly promotions / total number of employees	Horgan (2003)
Effectiveness		***Q7*:** How often does your recruitment process generate as many good/qualified applicants as you need?	5-point Likert-scale (1 = never – 5 = always)	Guest et al. (2003)

Additionally, with regard to the measurement of training, it is likely that asking whether employees are involved in identifying the type of skills/knowledge they lack, obtains richer information on this specific HPWP. Likewise, for performance appraisals to work effectively, the involvement of employees in setting the goals that get appraised is argued to have a motivational effect (Locke & Latham, 2004). Subjective aspects of sophistication are items tapping the *effort* management believes to invests in establishing a certain HPWP (*Q5*). The *frequency* (*Q6*) of HPWP aspects gives insight in the comprehensiveness of HPWPs in place. The number of appraisals per year, the number of upward/financial promotions per employee or the number of interview rounds per job applicant could therefore be of interest. Last, items tapping the effectiveness of HPWPs, have also been included. If a manager evaluates the recruitment procedure in terms of delivering qualified applicants (*Q7*), such item taps the functional effectiveness of the recruitment/selection practices in place. Overall, various indicators can be used to grasp the specifics of the HPWPs in place, although most HPWS-performance studies have relied on measuring the use and presence of HPWPs (Boselie et al., 2005). Including other indicators can be argued to increase further variability in how organizations execute their HPWPs.

5.3.2 Research design-specific issues

The three measurement issues above show that HPWS-Performance studies generated a considerable amount of alternatives concerning the choice HPWPs to measure, the nature of the practices to measure and the choice of indicators that get translated to actual items. It also demonstrates that in the measurement of HPWPs, between-organizational variance can increase or decrease through the way items are chosen and constructed. Below, we shall outline the three potential choices in the HPWP research design that, besides the construction of measures, vary across the various HPWS studies.

Issue #4: On what level to measure HPWPs?

The level on which HPWPs are measured, range from for instance industry level, organizational/firm, workplace/plant level, group/team level, job level or on the level of the individual employee. Boselie et al.'s (2005) research shows that researchers have predominantly measured HPWPs at an organizational/company level, asking senior/HR management about the practices that account for the whole organization. However, there are good reasons to consider other levels of analysis to

conduct HR research on. In their process and multi-level model, Wright and Nishii (2004) and Purcell and Kinnie (2007) make a distinction between intended, actual and perceived HRM practices, as they argue that there is much more variance within organizations and between organizational units/jobs in HRM practices than is commonly assumed. In the process of HRM, *intended* HR practices are shaped by organization's environment, (HR) strategy or other institutional contingencies and often written down in company policies or protocols.

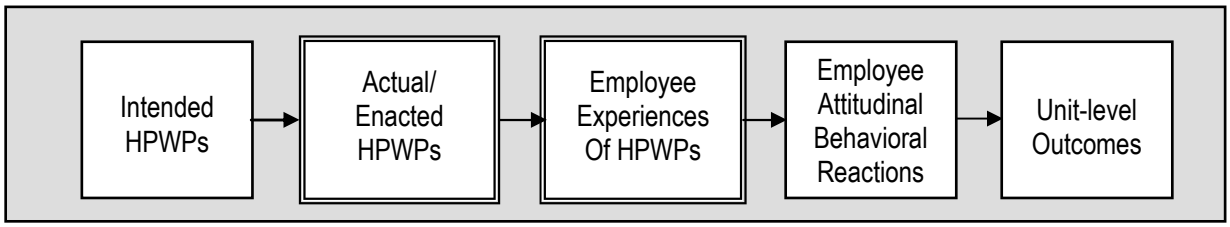


Figure 5-4: The HRM – Performance process model (e.g., Wright & Nishii, 2004; Purcell & Kinnie, 2007)

The *actual* practices refer to *enacted* HRM practices, that often may differ from the intended practices resulting. Wright and Nishii's (2004) argument refers to the 'disconnect' between intended and actual practices due to a number of organizational-political, institutional or rational reasons. These factors cause that actual key executers (HR/line management, supervisors or trainers) will not be uniform in their execution of the HRM practices. For example, an implemented performance appraisal system that seeks to provide incentives for good performance may in its execution lose meaning while supervisors do not want to differentiate between good-moderate and bad performers. As a consequence, HRM practices measurement on predominantly organizational-level activities only grasps the intended HRM practices and leaves the actual and perceived HRM practices unrevealed. Focusing at the actual/enacted HPWP interventions, Purcell and Hutchinson (2007) argue that the first-line management level is the level on which there is variation in the execution of HRM practices due to choices first line managers make.

Issue #5: Who rates the HPWPs?

The fifth measurement issue resolves around the rater/respondent who gets involved in the measurement of HR practices. What is the most reliable source to provide the information on HRM practices? On this matter, Boselie et al's (2005)

overview of HRM studies detect that the most used designs among researchers are *single-rater designs* (in which one key respondent rates all the HRM practices in place), followed by *multi-rater designs* (multiple raters from the same sub-population – such as different line managers - each rate all HRM practices in place) and *multi-actor* designs (multiple actors from a different sub-population – such as a line manager, employee representative and HR manager - each rate all HRM practices in place). In addition, one could also distinguish a so-called *expert-rater designs*, in which only the respondents who are most informed about certain HRM practices – such as a training expert, a quality manager, or a pay and benefits expert- each rate only the HPWPs that are in their line of expertise (see Neal, West and Patterson (2005) for an example). Error in the measurement due to raters who are too distal from the information needed to create an accurate picture, forms a serious problem for the reliability of the measurement (Gerhart, Wright, McMahan & Snell, 2000; Huselid & Becker, 2000). The inter rater reliability of HPWPs is found to be dangerously low, and to control for unreliability Gerhart et al. (2000) recommend at least three raters per unit of analysis to average the raters' scores per independent HPWP into a more reliable variables.

Issue #6: What research instrument to use?

The last choice the researcher is confronted with to make concerns the type of research instrument to use. In general, one has the choice between (semi)-structured face-to-face or telephone interviews and the survey-instrument (questionnaire). An indicator for what choice to make is first of all the research problem itself and subsequently the items constructed to gather the needed information. Boselie (2002), based on the work of (Yin, 2002), notes that a more qualitative research design matches with open interviews on *'how? and why?'* questions. A more quantitative approach matches with questionnaires or highly structured (telephone) interviews with fixed response formats with respect to *'who?, what?, where?, how many?, how much?'* questions. The well-known trade off between the richness and the amount data gathered with respectively time-consuming interviews and the quick tick-a-box questions in a questionnaire illustrates the choice researchers have to make. To overcome the possible downsides of each of the research instruments, one can make use of methodological triangulation in which both quantitative and qualitative methods are included, to check whether the researcher draws possible wrong conclusions from either the interview or a questionnaire on HRM practices in place.

5.4 CHAPTER CONCLUSION AND NEXT CHAPTER

In this chapter the specifics of a High Performance Work Systems Framework were presented. The growing body of literature and empirical research on HPWPs seem to indicate that overall certain combinations of HR practices explain variance in organizational performance (Combs et al., 2006). Nevertheless, there are still gaps between the proposed theoretical assumptions and the actual measurement of the High Performance Work Practices in the framework. The issues with regard to the adequate measurement of HPWPs in practice can be categorized in *HPWP-specific measurement issues* and *research design-specific measurement issues*. Each of these issues pose choices for researchers when measuring the individual HPW practices that form the key building blocks for measuring the ultimate HPW system in relation to performance outcomes. Inadequately addressing those choices can seriously affect the HPWS measurement reliabilities. Taking the pitfalls to HPWP measurement into consideration, the development and validation of the HPWPs measures used in this dissertation is presented in the next chapter. As shown in Figure 5-5, this chapter elaborated on the value and specifics of the High Performance Work Systems framework for the further investigation of work and organizational determinants of well-being *and* performance.

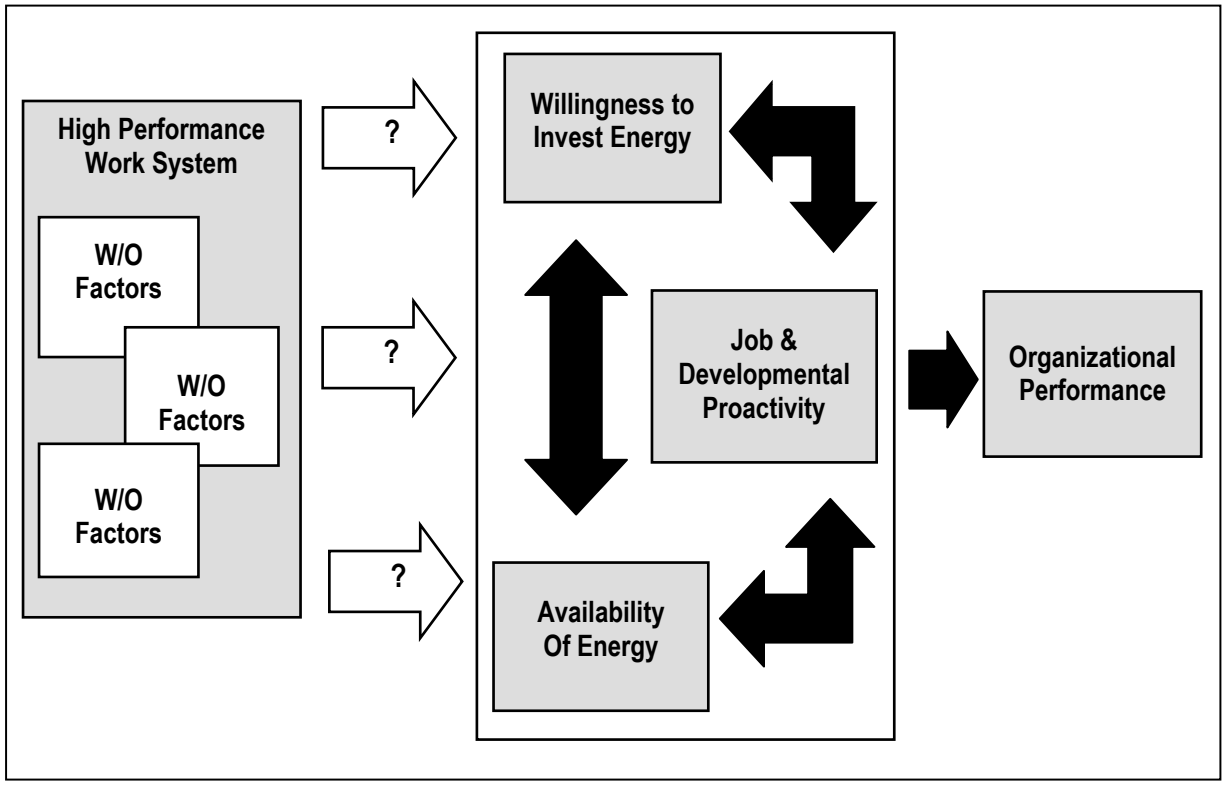


Figure 5-5: This Chapter's Contribution to the overall Research Framework

Chapter 6

The measurement and validation of High Performance Work Practices [8]

6.1 INTRODUCTION AND GOAL OF THIS CHAPTER

Having identified work and organizational practices in a theoretical high performance work systems framework and the methodological issues concerning its measurement, this chapter aims at the actual measurement and validation of High Performance Work Practices (HPWPs). By presenting two studies, *Study 1* aims at constructing reliable and meaningful HPWPs on several human resource management domains. *Study 2*, will present the outcomes of a study linking the constructed HPWPs to employee experiences of the HPWPs in order to validate the proposed on the experienced work environment.

6.2 STUDY 1: THE MEASUREMENT OF HIGH PERFORMANCE WORK PRACTICES

Following the methodological issues in chapter 5, this section presents the HPWP measurement specifics in this dissertation. First, the specific measurement choices are further elaborated on. Second, we present the quality indices of the measured HPWPs. Finally, we discuss the finally constructed HPWP measures.

[8] A part of this chapter was based on an earlier version of a paper by Dorenbosch, L.W., Van Veldhoven, M. & Paauwe, J. (2007). Employee Experiences of Single and Bundled High Performance Work Practices. Paper presented at the Dutch HRM Network Conference, November 2007, Tilburg University, The Netherlands.

6.2.1 Choices in the Development of HPWP Measures in this Dissertation

Which HPWPs were measured?

Table 6-1 shows the HPWP domains of intervention that were included in this study. In total, we initially focused on 8 separate HPWP domains. To a great extent, the top-10 most included HPWPs in HRM research (based on the overview of Boselie et al., 2005; see previous chapter) were the targets of investigation. The HPWPs that we additionally focused on were work-life balance arrangements and HR planning/staffing which in the meta-analysis of Combs et al. (2006) were found to be positively related to organizational performance. Although the same meta-analysis showed that the HPWP domain of performance management/appraisal was not related to organizational performance, it was included in this dissertation study for two reasons. Firstly, because performance management/appraisals are considered to be a central work practice in the HPWS framework (Legge, 2005; Wood, 1999a; Appelbaum, 2002). Secondly, because it is ranked of one of the most included work practices in HRM research (Boselie et al., 2005). To adequately position this research in line with previous HPWS research, we choose to include the performance management/appraisal domain.

Table 6-1: HPWPs included in this Dissertation

Most included HPWPs in research (Based on Boselie et al., 2005)	**HPWPs related organizational performance?** (Based on Combs et al., 2006)	**HPWPs included in this study**
Training & Development	**Yes**	**Yes**
Recruitment and selection	**Yes**	**Yes**
Contingent pay and rewards	**Yes**	**Yes**
Performance management/ appraisal	*No*	**Yes**
"Good" (Above-Market) Wages	**Yes**	**Yes**
Internal promotion opportunities	**Yes**	**Yes**
HR (Career/Succession) Planning/Staffing	**Yes**	**Yes**
Work-Life Balance Arrangements	**Yes**	**Yes**

What nature and indicators of HPWPs were measured?

For developing the items for each of the HPWPs in our study, we focused on measurement at the lowest levels of abstraction in order to get richer information on what is exactly done with regard to each of the HPWP domains. Whereas most HPWP studies included single items on different HPWPs, we follow for instance Sels et al. (2006a, 2006b) and Guest et al., (2003) by including multiple items per HPWPs practice. Connected to the level of abstraction are the indicators we used (see Table 6-2). For each HPWP objective techniques or instruments can be used. For instance, with regard to career development, an organization can make use of different techniques like installing a mobility centre, working with career development plans or having re-education programs in place. By asking about the presence of several different career development techniques/instruments, we controlled for the risk that asking whether or not this practice was in place would be biased by the respondent's understanding of the term "career development". Further, to get a richer understanding of the HPWP in place for each practice we added items that tap the level of sophistication of each practice, which could be aimed at the investment, employee involvement, degree of effort or frequency of HPWPs-related aspects. Last for each HPWP, respondents could rate the effectiveness of each HPWP – i.e. to what extent does it do what it is meant to do.

Table 6-2: HPWP Indicators included in this Dissertation

HPWP Indicators	Definition
HPWP Presence	Number of different techniques/instruments that are used/present related to the HPWP domain
HPWP Sophistication	Degree of comprehensiveness in the management of the HPWP domain
HPWP Effectiveness	Evaluated management effectiveness of the HPWP domain

On what level were HPWPs measured?

Based on the arguments by Wright and Nishii (2004), Lepak and Snell (1999) and Purcell et al. (2007) on the likelihood of within-organizational and between work-unit

variability in the enactment of actual HPWPs, we collected HPWPs data at a (lower) work unit level of analysis. More specifically, it involves the first-line management (FLM) level, which means that HPWPs are measured at the hierarchical level at which they are most commonly executed or where decisions on the application of certain HPWPs arrangements, techniques are made. As not every organization is the same in hierarchical structure, it was to make sure that we targeted at the appropriate FLM-level

Who rated the HPWPs?

Based on Gerhart et al.'s (2000) indication of a majority of HPWS studies that are likely to contain measurement error due to the inclusion of only one rater/informant, or including raters that do not have adequate information on how HPWPs are enacted, we included first-line managers and internal HR advisors which were functionally related to the first-line manager. In different organizations this functional relationship could take different forms. For instance, in larger organizations at one location, internal HR advisors are situated in the same location. In larger organizations with departments/units at different locations, internal HR advisors could also be situated in a central HR department. By including two raters for the same work unit we control for subjectivity bias when including only one rater. Gerhart et al. (2003) advise to include as few as three raters when gathering HPWP data at the organizational-level. But since we already primed the research at a more specific work-unit level of analysis, two best-informed raters was the maximal approach possible at this level.

What research instrument was used?

For the data collection we used structured face-to-face interviews with mostly closed questions, in which respondents were asked to answer using a predefined response formats. On average, each structured interview took about 90 minutes to finish. Although we piloted the questions to rule out major misunderstandings, diverse backgrounds of the first-line managers made misunderstanding of jargon or terms used possible. In all cases, providing an example or further clarification made it possible to continue and finish the interview. This avoided the incidence of missing data (see Neal, West & Patterson (2005) for an almost similar reasoning).

6.2.2 HPWP Data Collection, Procedure and Sample Structure

The data on HPWPs were collected between May 2006 and February 2007 from a heterogeneous set of a total of 12 small, middle and large-sized Dutch organizations in a diversity of sectors (see Table 6-3 for an overview). Through contact persons in each of the 12 organizations, first line managers and internal HR advisors were asked to participate in structured interviews. This resulted in a working sample of 53 work units for which a total of 51 FLMs and 25 HR advisors provided 100% matched ratings for all of the participating work units. With regard to two work units, line managers had an interim-responsibility for one other work unit. This makes that 51 line raters account for 53 HPWP ratings at the work unit level. Furthermore, in some organizations internal HRM advisors were functionally related to multiple FLMs. They were asked to rate HPWPs for each of the separate work units under their responsibility, which makes that 25 HR raters provide HPWP data for 53 work units. Furthermore, Table 6-3 also shows the differences in FLMs job types. In most cases, a unit-manager was present. Within a small policy research institute, the director was interviewed with regard to two separate work units. Within 7 elementary schools at different locations, the school directors were interviewed. Within a large hospital, it became clear that the execution of certain HPWPs policies was done by teamleaders which also contributed directly to the primary work process. In some work units there was a clear unit manager responsible for the execution of HPWPs aspects. Of the 51 FLMs, 80% were male with average job tenure of 4 years. Of the 25 HR advisors 56% was male, with average job tenure of 5 years. Line managers reported an average frequency of 3-4 times per month that there was formal contact between line and HR (e.g., meetings).

6.2.3 Construction of HPWP Measures

For the construction of the HPWPs items we relied partly on the items used in previous HRM research. However, as said before, we were confronted by the lack of uniformity in the measurement of HRM practices. In their overview, Boselie et al. (2005) concluded that most of the studies used items that measure use/presence and coverage of a certain HRM practice or technique. For the measurement of the HPWPs domains we constructed new items that indicate the use/presence, intensity and effectiveness of interventions within the chosen HPWP domains (shown in Table 6-1).

Table 6-3: Sample structure, number of raters, matched line-HR rating

Sector	Organization	# Work units	# HR raters	# FLM raters	# Matched ratings	FLM respondent type
Services	Security Services	3	1	3	3	Unit Manager
	IT Consultancy	1	1	1	1	Unit Manager
	Policy Research	2	2	1	2	Director
	Financial / Bank	6	6	6	6	Unit Manager
Industry	Technical Support	2	1	2	2	Unit Manager
	Repair Services	7	1	7	7	Unit Manager
	Construction	4	1	4	4	Unit Manager
	Quality Control	1	1	1	1	Unit Manager
Government	Customs / Control	4	1	4	4	Unit Manager
	Local Government	2	1	1	2	Unit Manager
Medical/Care	Hospital	14	6	14	14	Unit Manager Team leader
Education	*Elementary School*	*7*	*3*	*7*	*7*	Director
Total		*53*	*25*	*51*	*53 (100%)*	

6.2.4 Designing HPWPs scales

The interviews resulted in a comprehensive dataset of FLM and HR advisor ratings on a total of 94 items covering all HPWP domains distinguished in Table 6-1. To process the data into meaningful and reliable HPWP scales, the following procedure was followed.

Missing data Due to the choice to collect the data via face-to-face interviews the amount of random missing data was substantially reduced. Although we piloted the degree to which the items were answerable and understandable, some items processed systematic missing data. These items were found to be unclear, or were open to multiple interpretations. The advantage of face-to-face interviews was that the researcher could interpret whether the question asked was correctly understood. Items/questions that were found to produce substantial answering problems were removed from the total dataset.

Recoding items to 5-point scale Each of the items was recoded to a 5-point measurement scale. As the items for HPWP presence measured whether a work unit made use of different HPWP techniques, we first checked the distribution of HPWP presence for all work units. Based on this distribution (e.g., does a work unit use 1, 2 or 3 etc. techniques in order to promote career development) the scores for each work unit were categorized on a 5 point scale - a forced normal distribution.

Interitem-Reliability With all items recoded to the same measurement scale, reliability analyses were prepared to examine whether the distinguished HPWP aspects for each practical domain would be evaluated to coexist in internally consistent patterns. In other words, we aimed to examine whether work units consistently adopt certain aspects of the HPWP domain simultaneously. Important to note is that this differs from individual-level psychological construct measurement principles. Here, items are used to measure an underlying theoretical psychological construct, whereas the work unit-level HPWP measures are aimed at grasping combinations of co-existing HPWP activities or interventions of practical significance. This is also stated by Delery (1998), who argues:

> 'It is important to note that many HRM practice measures are quite different than scale items typically used in industrial/organizational psychology to measure such attitudes as job satisfaction or organizational commitment. Items in those types of scales are written to measure the underlying construct. HRM practices, on the other hand, are activities an organization engages in to help it achieve goals.' (p. 300)..

As discussed, different HPWP indicators (presence, sophistication and effectiveness) were included, which in combination are expected to cover different aspects of the HPWP domain. In order to examine multiple HPWP activities (per HPWP domain) that together provide a rich understanding of the HPWP in practice, it was decided that items on each of the three indicators should be included in the design of reliable and multi-faceted HPWP scales ("indicator-criterion"). As such, the co-existence of activities on different HPWP indicators focus on the measurement of the *intensity* (a label also used by Sels et al., 2006a; 2006b) of practically meaningful HPWPs at the work unit level. This is shown in Figure 6-1.

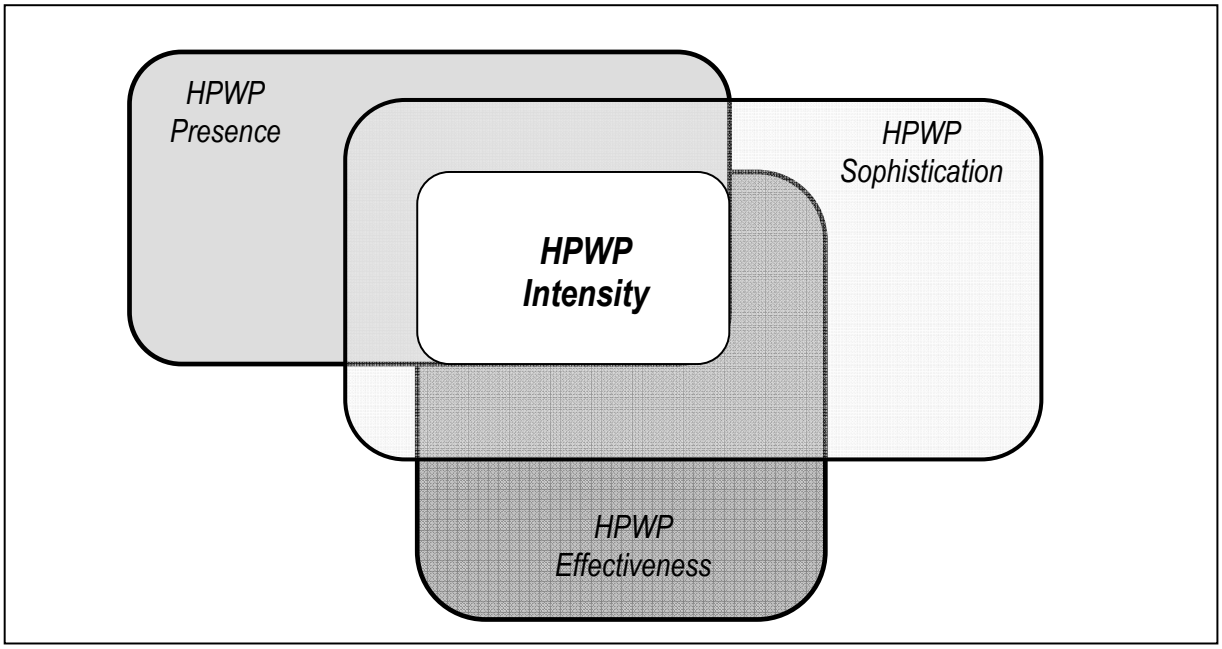


Figure 6-1: HPWP indicators and the overall label of HPWP intensity

Interrater-Reliability Another important aspect with regard to the reliable and valid measurement is the concern for interrater reliability, which has previously been found to be low between FLMs and HR advisors (Gerhart et al., 2000). A way of dealing with the low interrater reliabilities is to average the scores of the different raters under the assumption that this method of combining data will provide the best overall estimate of HR system component being assessed. Arthur and Boyles (2007: 88) stated: 'This approach, however, assumes that random measurement error, and not systematic position-based differences, is the source of the variability in key informant reports'. At face value, it is hard to determine how random or systematic the differences between raters in their rating of HPWP items are. Therefore, we took an alternative approach. To avoid the inclusion of items which FLMs and HR advisors systematically and consistently rate differently (which could cause measurement error due to raters), it was decided to include both the FLM and HR advisor item scores ("rater-criterion"). To the extent that including the FLM's and HR advisor's "parallel" ratings of items did not negatively impact the inter-item reliabilities, the conclusion would be that both HPWP raters in the same work unit did not systematically differ in their evaluation of HPWPs in place. In this case, two scores from different raters on the same items were included in the HPWP scale. Unfortunately, we could not include parallel ratings for the items of HPWP *presence*, as they were only included in the interviews with HR advisors. Also, we did not

further examine those items on which FLMs and HR advisors scored systematically different.

HPWP Intensity Scale Construction Taking into account the indicator- and rater-criteria described above, we ran reliability analyses on the initial categorisation of items for each of the 7 distinguished HPWPs. For four HPWPs (*career development, performance appraisal, wages & benefits and work-life balance*) a reliable scale could be constructed after removing only a few items. For *functional training*, the number of training days was included as an indicator of presence instead of sophistication. This was based on the interview findings that for some functional groups, the variation in training techniques to use was limited, although they had internal policies on the amount of employee training days per year. As respondents answered on the basis of the number of training days formally agreed upon, we included it as indicator of the presence of a less/highly extensive functional training program. For the initially separate HPWPs *HR staffing/planning* and *recruitment/selection,* it was not possible to construct two separate reliable HPWP intensity scales when taking into account the formulated indicator- and rater-criteria. However, after examining the relationships between the different HPWP items, another pattern of relationships appeared. Labelled as *internal staffing efficiency*, a scale was constructed which contains items that tapped the degree to which a work unit closely monitors future staffing needs, relies on working with permanent instead of temporary staff, recruits new employees from within the organization and therefore establishes a tighter and more efficient staffing strategy (see Appendix A for all the items included).

HPWP Scale Reliability Indices A total of 55 items (both FLM and HRA ratings) could be used to construe 6 HPWP intensity scales. As shown in Table 4-7, the scale reliability-analyses show reasonable to good reliabilities ranging from .59 to .80. Although much of the research on HPWPs does not indicate reliabilities, or only reports reliabilities with regard to the co-existence of multiple HPWPs (system measure-reliabilities), our single HPWP intensity reliabilities equal the reliabilities for separate HPWPs found in a study by Sun, Aryee and Law (2007), which fell between .50 and .86. Following their justification, low reliabilities were acceptable on the ground that reliabilities of between .50 and .60 are considered adequate in the early stages of scale development (Nunnally, 1978).

Table 6-4: Descriptive Statistics for HPWP Intensity Scales, Internal Reliabilities

HPWP Scales	Descriptives					
	# Items	Range	Mean	SD	α	N
Internal Staffing Efficiency Intensity	10	1-5	3.40	.53	.59	53
Functional Training Intensity	7	1-5	2.87	.62	.65	53
Performance Appraisal Intensity	10	1-5	2.74	.70	.67	53
Growth & Development Intensity	13	1-5	3.02	.68	.77	53
Work-Life Balance Intensity	5	1-5	3.52	.79	.70	53
Wages & Benefits Intensity	10	1-5	2.78	.62	.73	53

6.2.5 Conclusions Study 1

Study 1 aimed at identifying and measuring work and organizational factors that fit the intervention-based High Performance Work Systems literature. Therefore, we described the assumptions underlying a HPWS and which measurement issues are relevant to an adequate measurement of high performance work practices. From there, we presented our measurement approach that builds on insights developed over the years with regard to which HPWP specifics to measure and how the enactment of HPWPs in organizational practice affect the measurement design choices. Taking these measurement issues into consideration, HPWP measurement within 53 work units resulted in 6 reliable HPWPs measures, which will be further used to see whether and how work-unit level HPWP interventions affect employee vitality and work unit performance. Figure 6-2, show the updated research framework. In Study 2, the HPWPs are further validated.

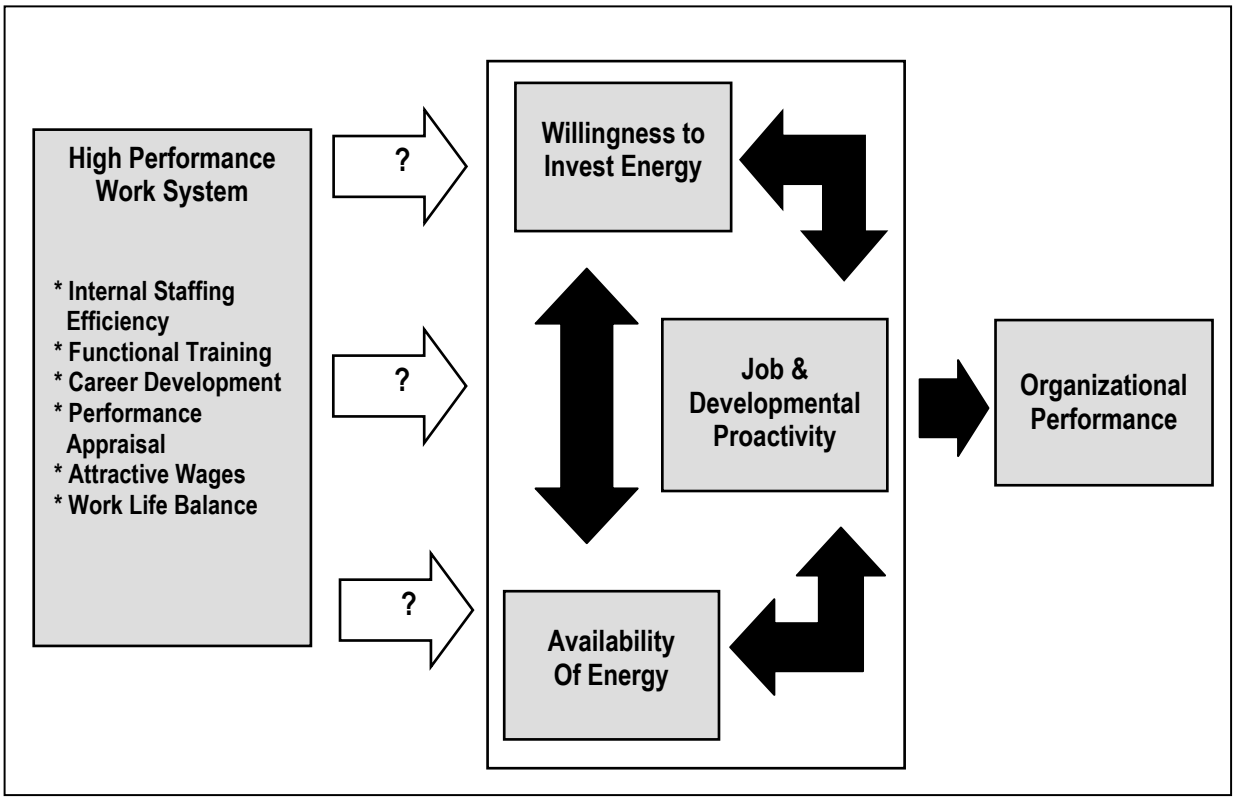


Figure 6-2: This study's contribution to the overall research framework

6.3 STUDY 2: THE VALIDATION OF HIGH PERFORMANCE WORK PRACTICES

In Study 2, the question is whether HPWPs do what they ought to do. Here, we focus on the employee experience of each of the distinguished HPWPs. The actual employee experience of the HPWP in place is considered a crucial intermediating phase in the process of explaining the impact of HPWP interventions on attitudinal and behavioural employee reactions (Guest, 1999; Wright & Nishii, 2004; Chang, 2005; Purcell & Kinnie, 2007). In order to examine the contribution of HPWPs to employee vitality and performance outcomes, a last hurdle to take is to examine how the adoption of HPWPs impacts the employee's experienced work environment.

Employee experiences of work, the work environment and the subsequent attitudinal/behavioural reactions, have been subject to the majority of individual-level studies in organizational behaviour (Johns, 2006) and occupational health (Van Yperen & Snijders, 2000). Based on the individual-level rationale that individuals make different assessments of the same work environment, this variance in work

experiences has generated a great deal of valuable insight in the either beneficial or detrimental individual employee outcomes of work. Although individual work experiences can differ, an important question is whether they differ more between members of different organizational units than between members of the same organizational unit. If so, a certain degree of collectivity in employee work experiences could point towards the existence of "objective" work contextual factors of which the experiences are shared among employee members "nested" in the same organizational unit. Methodologically, this is of great importance, while measuring work environment aspects at the individual-level when it actually is found to be a shared construct at a higher level of analysis can (1) seriously restrict the range of individual-level variance (Johns, 2006), and (2) causes interpretation problems because the level of measurement does not equal the level at which the actual variance in the variable exists.

For HR research and practice this issue is particularly relevant, because it deals with the question on which level interventions are most likely to have an effect. Another related issue is whether HR interventions (like HPWPs) cause individuals to perform better or cause teams/work units/organizations to perform better. From a managerial point of view, the initial assumption is that HR interventions to a great extent will impact every employee's degree of discretionary effort expenditure in a similar fashion. Consequently, this would also assume that every employee experiences "objective" HR interventions in a similar way. To what extent HPWPs relate to these collective work experiences is the main focus of this chapter's second study.

6.3.1 Enacted and Experienced HPWPs

Recently, the theoretical process between HRM practices (specifically HPWPs) and organizational performance has received further attention referred to as the "HRM-performance process" (Wright & Nishii, 2004; Purcell & Hutchinson, 2007). As depicted in Figure 6-3, a causal chain of events discriminates between intended HR practices, enacted HR practices, experienced HR practices, employee reactions and organizational (unit) performance outcomes. As such, it serves as a conceptual "roadmap" to understand how the organization's written-down (intended) HRM policies and practices affect performance outcomes through human resources.

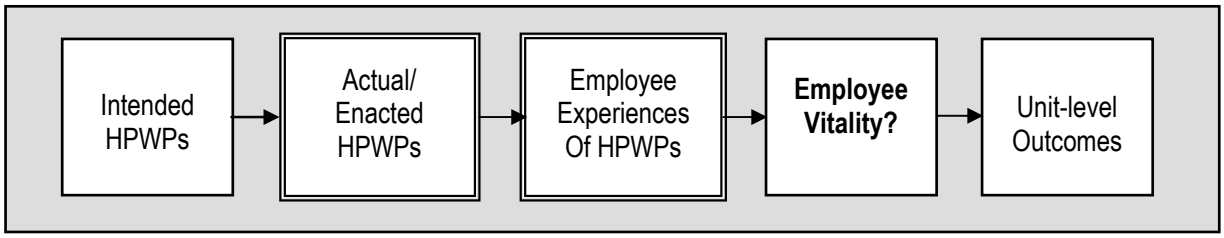


Figure 6-3: The HRM – Performance process model (e.g., Wright & Nishii, 2004; Purcell & Kinnie, 2007)

Furthermore, the process-model addresses the research design issues that researchers face when examining the HRM-performance linkage. The HRM process model makes explicit that the organizational-level, single (senior management) rater research designs only measuring intended HRM practices and organizational performance can not provide adequate insight in *how* HRM impacts performance (Purcell, 1999). Therefore, theory and research on each of the links between the causal stages in the model could lead to a better understanding of this process and explain conflicting research results. Previous research on the intended-enacted practices linkage found that intended organizational policy-based HR practices are often "buffered" by first-line management when executed (Truss, 2001; Purcell & Hutchinson, 2007). In other words, first line managers vary in the way they implement HRM practices at a unit-level lower down the hierarchy. Consequently, this causes variance in the way employees experience and react to enacted HRM practices within organizations and between units, which in turn relates to between-unit variance in performance outcomes (Wright & Haggerty, 2005; Lepak & Snell, 1999; Kinnie, Hutchinson, Purcell, Rayton & Swart, 2005). Referring to this process model of HRM and performance, we will focus specifically on the link between enacted HPWPs and the employee experience of HPWPs practices at the work unit level. This is argued to be a crucial intermediating phase in explaining how HRM activities affect performance through employee attitudes and behaviours.

6.3.2 HPWPs *experiences*: the same as HPWPs *perceptions*?

There is some confusion in the literature describing this model with respect to the labelling of the phase between enacted HRM practices and employee reactions. Both Wright et al. (2004) en Purcell et al. (2007) originally refer to this phase as "perceived" HRM practices instead of "experienced" HRM practices. Although, they also describe employee experiences, the difference between perceptions and

experiences of work practices is subtle, but important. Employee perceptions of work practices would denote whether employees see the same HRM activities as first line managers/HR advisors. For instance, in research, Wright, Gardner and Moynihan (2003) and Zacharatos, Barling and Iverson (2005) included perceived HPWPs as a replacement of enacted HPWPs in testing the employee and organizational performance effects of HPWPs. Wright et al. (2003) argue that employee ratings would come the closest to the HPWPs that actually are present. Therefore, using employees as a source of HPWP data would be a more reliable approach than asking first line managers or HR advisors what HPWP interventions take place. However, this can be contested on two grounds. First, there is no reason to assume employees would be able to perceive HPWPs more adequately than managers. For instance, to what extent can they perceive recruitment and selection practices or individual wage negotiation practices, which take place infrequently, behind management doors or outside of the organizational unit (in the case of recruitment)? In other words, are employees always the best informed raters? Second, employees are often not aware of the terminology used with regard to HRM and HPWPs. So it would only be possible to obtain HPWPs data by using very simplistic, clear-cut items often on a survey-based basis. But this does not necessarily enhance the richness of the information on what takes place. Instead of relying on the employee *perceptions* of HPWPs, we focus on employee *experiences* of HPWPs.

Experienced HPWPs refer to employee reports of aspects of their (subjective) job, work and organizational context which can be argued to be affected when adopting HPWPs and which are arguably related to the HPWPs-performance debate. This excludes, for instance, employee experiences of the physical/technological properties of the workplace (e.g., low office temperatures or unsafe machinery/work equipment). Although important to the employee's daily work situation, these elements are not likely to be affected by HPWPs and are not considered relevant to the HPWP-performance linkage. Here, the employee experience of HPWPs practices does not refer to what people see in terms of HPWPs, but what they experience in their work as a result of the enacted HPWPs. In I/O psychology, employee experiences of job aspects and organizational factors are commonly used as predictors of work-related attitudes and behaviours for the reason that is the subjective appraisal or experience rather than the objective work environment that individual employees react to or are affected by (e.g. Lazarus, 1993). In effect, there

are a multitude of employee work experiences that can follow from HPWPs practices. In relation to organizational performance outcomes, two types of employee experiences are distinguished: (1) the functional purpose/effectiveness of HPWPs and (2) the communication of expectations, norms and values through HPWPs. Purcell and Hutchinson (2007) already explicitly acknowledge the possibility of differential employee experiences of HPWPs, by stating:

> 'Each HR practice and the way it is applied will have a functional purpose and employees can judge each in terms of utility or satisfaction to them […]. But taken together, people management has a non-instrumental role of communicating to employees the nature of the firm, their value to it and the type of behaviours expected.' (p. 7)

However, for reasons of parsimony, in the next section we will elaborate on the experienced functional effectiveness of HPWPs.

6.3.3 The functional effectiveness of HPWPs

The focus on single, seperate HPWPs brings forth the issue of functional effectiveness when these HPWPs are adopted and enacted by line managers. In other words: *do HPWPs do what they ought to do?* According to the HRM-Performance process model, employees react to their work and work environment on the basis of their experience of certain work aspects influenced by the adoption of HPWPs. As each HPWP represents its own domain of management intervention, they would be more strongly related to a typical target outcome (e.g., training relates to experienced learning opportunities). Although this can be considered somewhat tautological, few studies include the actual employee experiences resulting from single enacted HPWPs. In addition, Marchington and Grugulis (2000) argue that some of the individual HPWPs might even lose their initial appeal when "unpacked". Overall, the HPWPs domains of interest connect to the *quality of work* - literature, which takes into account several facets of the employee work environment which together constitute the level of a "qualitative" workplace. This is reflected in the Job Characteristics model (Hackman et al., 1980), in which a number of independent qualitative work design characteristics are expected to construe enriched jobs (Parker & Wall, 1997). Over the years, these aspects of job enrichment have been broadened with aspects of an employee's larger work and organizational context. In general, these elements add up to provide employees with a positive work environment (Ostroff & Bowen, 2000) or underpin normative notions of "good" work or "good"

workplaces (Pfeffer, 1994; Gardner, Damon & Csikszentmihalyi, 2002), as opposed to monotonous, de-skilled, low-paid "McJobs" (e.g., Lindsay & McQuaid, 2004), which provide no room for learning and personal growth and autonomy. Each of the HPWPs can be argued to relate to independent elements of the experienced quality of work, which serve as indicators of functional HPWP effectiveness. Although a range of studies have concentrated on the effect of specific HPWPs, like teamwork (Steijn, 200) or performance management (Gallie, White, Cheng & Tomlinson, 1998) on work experiences, only few have included multiple enacted HPWPs and the subsequent employee work experiences.

For instance, Vandenberg, Richardson and Eastman (1999), in a sample of 49 organizations, tested the relationship between management ratings of HPWPs (work-life flexibility, training, direction setting, incentives and work design) and between-organizational differences in experienced (aggregate) levels of employee empowerment, information, rewards and knowledge. Overall, they found statistically positive significant relationships, although also negative ones were found with regard to incentive pay. Another finding in their study was that the selected HPWPs only accounted for a small proportion of the variance explained in the work experiences (a total of 9%). Alternatively, a study by Chang (2005) in 37 organizations also included management ratings of HPWPs and employee ratings of overall HPWP effectiveness. In this study, Chang's results show a positive significant effect between enacted organizational-level HPWPs and individual-level experienced HPWPs effectiveness, although the relationship was again found to be fairly weak. As there should be some sort of a relationship between separate HPWPs and employee ratings of its effectiveness, the few studies measuring it, do not paint a convincing picture.

Reasons for these weak relationships might be found on the following accounts. First, the measurement of enacted HPWPs in the two studies was conducted through a single-rater (in both cases HR managers). Second, they were conducted at the organizational-level, disregarding the first line management variance which consequently could cause employee experiences of HPWPs to differ within organizations. Third, the studies included a mixture of either indirect experienced HPWP effectiveness measures (asking about the quality of the work environment) or direct experienced HPWP effectiveness measures (asking whether employees regard enacted HPWPs as effective). All in all, the often assumed idea that HPWPs probably will do what they ought to do in the experience of employees

can certainly be contested. This makes that implications of possible HPWPs interventions with regard to employee and organizational outcomes should be approached with caution. With this in mind, this study will look more carefully into the *enacted-experienced HPWP* relationship. In order to paint a more detailed picture of the collective employee experience of single HPWP effectiveness, below, relationships are specified per HPWP domain at a work unit level of analysis.

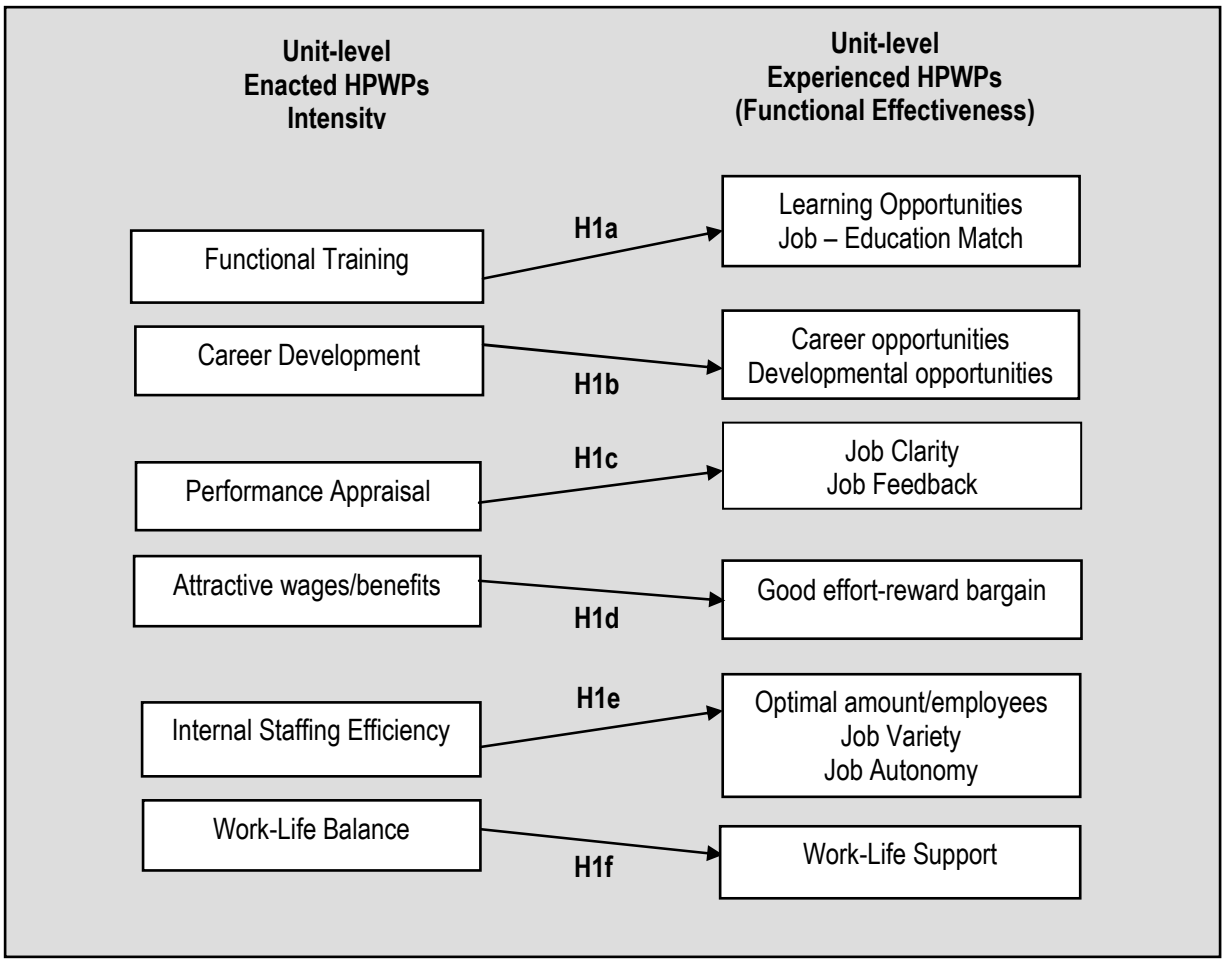


Figure 6-4: Enacted HPWPs and Experienced Work Characteristics (Functional Effectiveness)

6.3.4 Experienced Functional HPWP Effectiveness: Hypotheses

Figure 6-4 shows the hypothesized relationships between separate enacted HPWPs and the experienced HPWPs in terms of functional effectiveness. The hypotheses are discussed following the Figure from top to bottom.

First, *functional training* refers to the degree to which the upgrading of employee skills/knowledge to meet current job standards is emphasized (Lloyd & Payne, 2006). Here, units stimulate informal training, provide a significant amount of formal training days, provide employees with discretion to choose training that fills personal skill/knowledge gaps, and critically evaluate the performance effects of training programs in order to avoid waste of investment (Sels et al., 2006a; 2006b). The intensity of functional training would lead to the employee experience of the possibility to learn new things and an adequate educational level that matches the job requirements at hand.

> **Hypothesis 1a:** The intensity of functional training relates positively to the employee experience of (1) learning possibilities and (2) a job-educational match.

Second, *career development* focuses on the HRM activities that aim at providing opportunities as well as stimulating professional growth - both horizontally (within the same function) and vertically (to another function). It emphasizes the management attention for employee development and career through making agreements on developmental goals and the subsequent ability of the work unit to optimally deploy workforce abilities through optimizing a certain degree of supplies-values fit. This relates to the fit between (changing) personal values, goals and motives and the organizational supply of matching meaningful work (Xie & Johns, 1995). Hence, career development intensity relates to the employee experience of enough developmental and career possibilities.

> **Hypothesis 1b:** The intensity of career development relates positively to the employee experience of. (1) career opportunities and (2) job developmental opportunities.

Third, *performance appraisal (PA)* refers to the emphasis placed upon (1) the evaluation of the attainment of result-based goals and (2) the linkage between appraisals and rewards in order to reinforce desired performance levels (Stiles , Gratton, Truss, Hope-Hailey & McGovern, 1997; Den Hartog, Boselie & Paauwe, 2005). These components of PA aim at shaping a work situation in which employees have clarity on what it takes to successfully perform the job, as well as get structured

and direct feedback through appraisal and incentives to the extent they perform well or less well (Baron & Kreps, 1999). Viewing these PA components in relation to experienced work characteristics, the hypothesis reads:

> **Hypothesis 1c:** The intensity of performance appraisal relates the strongest to the employee experience of (1) job clarity and (2) job feedback.

Fourth, *attractive wages/fringe benefits* refer to the degree to which offered wages are initially above market or, in the case of fringe benefits, positively differentiate from those agreed upon in collective bargaining agreements. On both accounts, employees are offered more than formally would be appropriate and/or necessary. Additionally, as above market wages/benefits can attract productive employees, retaining them requires room for managers to negotiate when good employees threaten to leave the organization. To the degree that organizational pay policies reflect an active approach to the attraction and retention of employees in the labour market, employees will experience a good effort-reward bargain.

> **Hypothesis 1d:** The intensity of attractive wages relates the strongest to the employee experience of a good effort-reward bargain.

Fifth, *internal staffing efficiency* refers to the degree line managers have an inward staffing focus and efficiently make use of the internal labour market to match the supply of labour to fluctuating demands for labour. As such, they do minimize the hiring of temporary workers (numerical flexibility), but mobilize the functional flexibility within the present workforce to create optimal and efficient staffing levels (Kalleberg, 2001). We hypothesize that this would lead to the employee experience of enough people to do the job, enough autonomy do react flexible to fluctuating demands, but also to more job variety due to the emphasis on *functional* flexibility.

> **Hypothesis 1e:** The intensity of internal staffing efficiency relates positively to the employee experience of (1) optimal staffing levels and (2) job variety and (3) job autonomy.

Last, *work-life balance* refer to the provision of work arrangements to achieve a better balance between employees' professional and private lives, irrespective of their

marital or parental status (White et al., 2003). As a HPWP it emphasizes the organization's provision of possibilities for the combination of the employee's personal work and private/family life in order to offset or balance the adverse effects/incompatibility of the job outside the work domain (Osterman, 1995). Batt and Valcour (2003) describe three components of the organization's support to work-family balance, but which also link to work-life balance support: (1) employee access to dependent care policies (e.g., child care support), (2) employee access to benefits relating to the flexible use of work time and (3) supervisor support for the actual use of practices. As such, we expect that a clear emphasis on these elements will link to the employee experience of work-life balance support.

> **Hypothesis 1f:** The intensity of work-life balance arrangements relates positively to the employee experience of work-life balance support.

6.3.5 Methods

Just like the data on *enacted* HPWPs, the data on employee experiences of HPWPs were collected between May 2006 and February 2007 from a heterogeneous set of a total of 12 small, middle and large-sized Dutch organizations in a diversity of sectors. Below, the details of the employee data are presented.

Data Collection Procedure and Response

Employee Surveys For each of the included work units, we obtained employee data on experienced HPWPs, of which the questions were included in a larger employee survey conducted throughout the whole organization. As shown in Table 6-5, for the selected work units in which we obtained enacted HPWPs data, a total of 1795 non-managerial employees received hard-copy or (electronic) web-based questionnaires (see methods section in chapter 4). In all cases, except the electronic ones, stamped envelopes were attached to the questionnaires, which were addressed directly to the first author's university address. In total, 772 completed questionnaires could be used, which reflects an average response rate of 43% per work unit.

Table 6-5: Sample structure, # raters, # matched line-HR rating, survey response

Sector	Organization	# Work units	# Distributed Surveys	Surveys (% response)
Services	Security Services	3	226	53 (24%)
	IT Consultancy	1	31	20 (65%)
	Policy Research	2	63	43 (68%)
	Financial / Bank	6	111	101 (91%)
Industry	Technical Support	2	72	18 (25%)
	Repair Services	7	278	102 (37%)
	Construction	4	123	55 (45%)
	Quality Control	1	40	30 (75%)
Government	Customs / Control	4	112	63 (56%)
	Local Government	2	27	12 (44%)
Medical/Care	Hospital	14	507	207 (41%)
Education	*Elementary School*	*7*	*205*	*68 (33%)*
Total/Average		*53*	*1795*	*772 (43%)*

Sample Characteristics

Employee Sample The sample constitutes a mixture of higher skilled and lower skilled functional categories, such as nurses, IT consultants, security agents, teachers, policy advisors, mortgage advisors, technicians and operators. The average age in the total sample was 41.0 years. Of the employee sample 50.3% is male. In the sample, 36.9% of the employees have a higher vocational training or a university degree. The average number of contractual hours/week is 32.3 (standard deviation 10.1 hours/week), and the average number of years in the organization is 10.8 (standard deviation 10.2 years).

Measures for experienced HPWPs

For measuring experienced HPWPs variables in terms of functional effectiveness, to a large extent, we used scales from the VBBA questionnaire (Van Veldhoven & Meijman, 1994). Table 5-2 shows number of items and internal reliabilities indices (Chronbach's α) and intraclass correlations. All used items for the scales below can be found in Appendix B.

Employee Work Experiences For the scale "optimal staffing" we asked employee respondents to rate their experience of the frequency in which desirable and qualitative staffing levels are in place on a 4 point scale (*1 = 'never' to 4 = 'always'*). The "job autonomy" scale taps the control and discretion employees experience in executing their work tasks. Respondents could answer on a 4 point scale (*1 = 'never' to 4 = 'always'*). High scores reflect an internal staffing focus with little temporary and agency workers, enough permanent workers and a situation in which vacancies are quickly fulfilled. The "job variety" scale taps the respondents' experience of skill variety, opportunities for creativity and skill use that are present in the job. Respondents could answer on a 4 point scale (*1 = 'never' to 4 = 'always'*). For "learning possibilities" respondents were asked to which extent they experience emphasis on learning new skills and the enhancement of a sense of accomplishment in their job. High scores reflect the possibility for professional growth within the job. Respondents could answer on a 5 point scale (*1 = 'largely disagree' to 5 = 'largely agree'*).

The "developmental opportunities" scale taps the degree to which employees experience opportunities for further professional development beyond opportunities provided by the job itself. Respondents could answer on a 5 point scale (*1 = 'largely disagree' to 5 = 'largely agree'*). The "job clarity" scale taps the frequency to which employees experience clear job expectations and responsibilities. Respondents could answer on a 4 point scale (*1 = 'never' to 4 = 'always'*). The "job feedback" scale asks respondents to which extent employees experience the provision of enough information on work goals and the result of their work. A high score reflects a job situation with enough information and feedback on job results. Respondents could answer on a 4 point scale (*1 = 'never' to 4 = 'always'*). For the experienced "career opportunities", respondents rated whether they experience a job which provides financial growth opportunities, good career prospects and labour market position. Respondents could answer on a 5-point scale (*1 = 'largely disagree' to 5 = 'largely agree'*). For "job-educational match" we used a 1-item measure, asking respondents to which degree they experience that they are underqualified, overqualified or are exactly qualified for the current job. High scores reflect an educational match with the current job (=5), employee underqualification was considered to reflect a situation in which people move up but still have to learn new skills on the job (=3). However, employees experiencing overqualification move too slowly, while their education-level is higher than the current job requires (=1).

For the "work-life support" scale respondents could indicate how often they experience time flexibility in their work and work-life planning. On several accounts (flexibility in taking breaks, start/end of the work day, taking leaves, scheduling work hours) respondents could answer on a 4-point scale (*1 = 'never' to 4 = 'always'*). "Good effort-reward bargain" reflects employee ratings of the contentment with their current wage-level. High scores depict the employee contentment with wages with respect to their personal effort-reward bargain. Respondents could answer on a 5-point scale (*1 = 'largely disagree' to 5 = 'largely agree'*).

Control Variables

Several work unit characteristics served as control variables. First, to control for unit size, we took de absolute number of distributed surveys per work unit while the survey research was targeted at surveying all employees in the selected work units. Second, we included "work unit masculinity" as a measure of the proportion of males within the work unit (*1 = 'male'*). An indicator for work unit masculinity can control for the effect of dominant male vs. female professions in each of the work units included. Higher scores indicate a higher proportion of males. Last, the "average educational level" was included to control for the confounding effect of high vs. lower skilled work settings (*1 = 'lower education'; 6 = 'higher education'*). Following Lepak and Snell (1999) HRM practices could differ across work units within organizations because of the differential economic value and uniqueness of high/low skilled employees for the organization.

Unit-level Aggregation

As we expect that enacted HPWPs at the work unit level result in experienced HPWPs at the same level, we aggregated each of the individual employee-level measures described into a measure that represents a work unit construct. A range of authors have argued that individual experiences of enacted HPWPs are partly determined by shared experiences in the work unit (Hammer, Saksvik, Nytrø, Torvatn & Bayavit, 2004). In other words, the different types of HPWPs experiences can be expected to be shared by work unit members while *enacted* HPWPs are unit-level properties, which aim to differentiate between work units rather than between individuals. Van Yperen & Snijders (2000), Hammer et al. (2004) and Van Veldhoven (2005) all provided evidence of a significant amount of variance in individual experiences of their work that could be attributed to group level factors. In order to

make inferences of what happens at the work unit level when certain HPWPs are in place, an aggregate measure is a more reliable indicator of experienced enacted HPWPs than individual level data because aggregate measures do not contain idiosyncratic variance of individual experiences (Bliese & Jex, 2000 in Hammer et al., 2004). To determine to which degree work experiences are shared at the work unit level, one-way ANOVA's were performed.

Table 6-6: Scale names, Number of Items, Internal Consistency and ICC values

Scale name	Response	# Items	α	F-test	ICC(1)	ICC(2)
Control Variables						
Unit Masculinity	0/1	1	-	8.386***	.32	.88
Unit Average Education	1-6	1	-	11.193***	.40	.91
Work Experiences						
Optimal Staffing [2]	1-4	4	.78	21.499***	.57	.95
Job Autonomy [1]	1-4	4	.86	3.903***	.16	.74
Job Variety [1]	1-4	4	.84	7.673***	.30	.87
Learning Possibilities [1]	1-5	3	.91	6.712***	.27	.85
Job Clarity [1]	1-4	4	.82	3.568***	.14	.72
Job Feedback [2]	1-4	5	.85	4.276***	.17	.77
Developmental Opportunities [1]	1-5	3	.87	6.907***	.28	.86
Career Opportunities [2]	1-5	3	.84	3.035***	.12	.67
Job-Education Match [3]	1-5	1	-	2.047***	.06	.51
Work-Life Support [2]	1-4	6	.71	15.776***	.49	.94
Effort-Reward Bargain [1]	1-5	2	.84	6.818***	.27	.85

Note: [1] Employee n = 772/ Unit n = 53; [2] Employee n = 671/ Unit n = 47; [3] Employee n = 741/ Unit n = 52.

Note: *** p < .001; ** p < .01; * p < .05;

The *F*-ratios displayed in Table 6-6 indicate that for all the separate scales values greater than 2.00 were found. Following Hays (1981; in Anderson & West, 1996), values greater than 1.00 suggest there is sufficient evidence for between-work unit differences. For an aggregate measure to be of use, the most important issue is the

reliability of the aggregated scale scores. Two statistical parameters are often referred to in this context: the ICC(1) and ICC(2) (Bliese, 2000). Table 6-6 shows the ICC values for each scale. The ICC(1) can be defined as the amount of variance in individual scores attributable to the work unit. ICC(1) values (presented in Table 6-6) range from .06 to .57, implying that 6 to 57 percent of variance in individual work experiences is attributable to the group of work unit members. All scales exceed the minimum amount of 5% (Bliese, 2000). The ICC(2) reflects the reliability of the mean work unit scale scores. It is calculated on the basis of the mean square between work units and the mean square within work units. Values above .70 are considered good and values above .50 are deemed tolerable (Klein & Kozlowski, 2000). Based on the finding that all the ICC(1) and ICC(2) values reported in Table 6-6 exceeded minimum values, it allowed us to further test the relationships between enacted and experienced HPWPs at the work unit level of analysis.

6.3.6 Results

Correlations and Descriptives

Table 6-7 presents the descriptives of the enacted *HPWP intensity* measures and the experienced HPWPs categorized in (experienced) functional effectiveness. Remarkable is the only negative correlation (non-significant) between internal staffing efficiency and performance appraisal.

Regression Analyses

Enacted → Experienced HPWPs Table 6-8 shows the standardized regression coefficients between single HPWPs and experienced work characteristics (hypotheses 1a–1f). Looking at the control variables entered in step 1, they largely have significant relationships. Overall, they explained a substantial part of the variance in collectively experienced work characteristics. For the HPWPs that were entered collectively in step 2 (controlling for each other's influence), four out of six HPWPs showed positive significant relationships with some or all of the hypothesized work employee experiences. Here, the intensity of functional training, attractive wages/benefits, internal staffing efficiency and work-life balance indeed relate to the employee experience of work characteristics that indicate the functional effectiveness of these single HPWPs. This supports the practical validity of these HPWPs.

Table 6-7: Descriptives and Correlations of Enacted HPWPs and Aggregated employee work experiences (unit level)

Variable	M	SD	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1 Functional Training	2.86	.62																		
2 Career Development	3.02	.68	.64**																	
3 Performance Appraisal	2.74	.70	.24#	.35*																
4 Attractive Wages	2.78	.62	.39**	.34*	.41**															
5 Internal Staffing Efficiency	3.40	.53	.32**	.34*	-.25	.01														
6 Work-Life Balance	3.52	.79	.41**	.45**	.32*	.29*	.53**													
7 Learning opportunities	3.56	.53	.54**	.64**	-.01	.15	.53**	.43**												
8 Job-educational match	4.40	.47	.45**	.54**	.07	-.05	.27#	.31*	.71**											
9 Developmental opp.	3.09	.54	.47**	.52**	.17	.21	.39**	.34*	.75**	.56**										
10 Career opportunities	2.53	.41	.13	.18	.09	.39**	-.06	-.08	.40**	.12	.34*									
11 Job Clarity	3.15	.26	.33*	.23	-.18	.11	.48**	.47**	.44**	.53**	.42**	-.01								
12 Job Feedback	2.65	.34	.40**	.44**	.00	.13	.57**	.51**	.72**	.59**	.66**	.17	.65**							
13 Effort-Reward Bargain	2.85	.53	.22	.30*	.47**	.68**	.05	.30*	.12	.09	.34*	.43**	.15	.11						
14 Optimal Staffing	2.86	.53	.64**	.60**	.03	.35*	.66**	.56**	.80**	.58**	.61**	.22	.56**	.70**	.25#					
15 Job Autonomy	2.79	.35	.34*	.24	.20	.06	.25#	.31*	-.19	.14	.18	.12	.07	.36*	.23	.19				
16 Job Variety	2.78	.39	.50**	.66**	-.07	.06	.58**	.32*	.80**	.49**	.50**	.15	.26#	.55**	.03	.68**	.32*			
17 Work-Life Support	2.89	.41	-.12	-.09	.40**	.21	.10	.43**	.23	-.20	-.14	.10	.00	.13	.43**	-.04	.47**	-.21		
18 HPWP Bundle	9.29	1.46	.84**	.86**	.18	.33*	.66**	.57**	.72**	.54**	.58**	.12	.42**	.56**	.25#	.77**	.35*	.72**	-.06	
19 Work unit performance	3.76	.53	.40**	.24#	-.05	.01	.11	.05	.34*	.28*	.24#	.12	.10	.27#	.04	.41**	.10	.33*	-.14	.33**

Note: Unit n = 47 - 53 ; ** p < .01; * p < .05; # p < .10

Otherwise, the experience of career opportunities was found to be more strongly related to attractive wages and benefits. Despite this unexpected finding, the intensity of career development related (nearly significant) to the experience of opportunities for learning and development. Furthermore, performance appraisal did not yield any of the expected relationships with job clarity and job feedback. Also, the results show that for the experience of job feedback and job autonomy, none of the single HPWPs yield any significant relationship.

Table 6-8: Regression analyses for enacted HPWPs and Aggregated employee work experiences

	LP[1]	*JEM*[3]	*DO*[1]	*CO*[2]	*JCL*[1]	*JF*[2]	*ERB*[1]	*OS*[2]	*JA*[1]	*JV*[1]	*WLS*[2]
Step 1: Control											
Work Unit Size	.10	.18	-.02	.09	.24#	-.10	.10	.05	-.07	-.05	-.30#
Work Unit Masculinity	-.40**	-.37**	.40**	.05	-.60**	-.47**	.06	-.45**	.08	-.13	.03
Work Unit Education	.48	.41**	.17	.01	-.04	.25#	.03	.43**	.14	.64**	-.35*
R² Step 1	*.47*	*.33*	*.23*	*.01*	*.39*	*.37*	*.01*	*.45*	*.03*	*.50*	*.13*
Step 2: HPWPs											
Functional Training	**.31***	**.30#**	.32*	-.03	.14	.14	-.24	.37**	.26	.23*	-.41**
Career Development	.23#	.30#	**.15**	**.27**	-.01	.02	.12	.01	-.06	.31*	-.07
Performance Appraisal	-.12	-.03	-.03	.09	**-.16**	**-.02**	.25	.04	.30	-.14	.21
Att. Wages/Benefits	.03	-.28*	-.16	.41*	-.01	.01	**.52****	.20*	-.11	-.04	.12
Internal Staffing Efficiency	.18	-.02	.55**	-.04	.33*	.28	.34#	**.31****	**.21**	**.26***	.06
Work-Life Balance	-.12	.00	-.33#	-.28	.20	.07	.05	-.06	.16	-.14	**.66****
R² Change Step 2	*.26*	*.21*	*.38*	*.24*	*.25*	*.14*	*.47*	*.36*	*.23*	*.28*	*.47*
R² Total	*.73*	*.54*	*.61*	*.25*	*.64*	*.51*	*.48*	*.81*	*.26*	*.78*	*.60*

Note: LP=Learning Possibilities; DO= Developmental Opportunities; JEM = Job Education Match; CO = Career Opportunities; JCL= Job Clarity; JF= Job Feedback; ERB = Effort Reward Bargain; OS= Optimal Staffing; JA = Job Autonomy; JV=Job Variety; WLS = Work-life Support ; **Note:** [1] Employee n = 772/ Unit n = 53; [2] Employee n = 671/ Unit n = 47; [3] Employee n = 741/ Unit n = 52 ; **Note:** ** p < .01; * p < .05; # p < .10.

Additionally, Table 6-8 shows that besides the hypothesized relationships, the enacted HPWPs also have relationships with other than the expected work experiences. In some cases, variables were found to be stronger related to the

employee experience of other work characteristic than the initial hypothesized variable. For example, a high intensity of career development more strongly relates to job variety than the intensity of internal staffing efficiency relates to job variety. Interestingly enough, the intensity of performance appraisal was found to be significantly *un*related to all of the included employee work experiences. Overall, except for performance appraisal, the distinguished HPWPs have a significant impact on how member's of a work unit experience their work environment.

6.3.7 Distinguishing a HPWP bundle

So where do the results on the employee experiences of enacted HPWPs leave us? First, as expected, the results show that not all six HPWPs have the same effect on employee experiences. However, in support of practical validity, they largely show relationships with the expected work experiences. Interestingly, some HPWPs negatively relate to certain employee work experiences, where other HPWPs show positive relationships with the same work experiences. This implies that the combined influence of enacted HPWPs on employee work experiences (and the subsequent employee reactions), is possibly more complex than literature on HPWS often assumes. When theory assumes that a set of multiple HPWPs will reinforce each other towards employee and organizational performance, our results show that there is also the possibility that the positive effect of certain HPWPs can get diminished by the adoption of others. This calls for more specificity on which HPWPs would actually reinforce each other, in line with assumptions underlying a HPWS framework. Second, it becomes clear that especially performance appraisal plays no significant role in relation to the expected work experiences. Additionally, the majority of effects of performance appraisal on each of the dependent variables even point towards negative relationships. This would suggest that performance appraisals do not do what HPWS theory expects them to do. This calls into question whether performance appraisal fits a HPWS framework. Third, on the positive side, three HPWPs (training, career development and internal staffing efficiency) correspond with each other in their largely positive effects on work experiences that correspond with the assumptions underlying a HPWS framework. In the next paragraphs, it is explored whether a "core" bundle of HPWPs that taken together have a strong positive relationship with a number of meaningful employee work experiences can be distinguished. Additionally, the impact of a HPWP bundle on work unit performance is examined to fully validate its contribution.

Additional analyses: Employee experiences of a HPWP bundle

To test whether the adoption of a bundle of functional training, career development and internal staffing efficiency, together, would constitute a different set of HPWPs than work practices of attractive wages, work life balance and performance appraisal, we ran additional regression analyses. Here, we included a HPWP bundle measure which was formed on the basis of the additive scores on training, career development and internal staffing efficiency. An additive approach to the measurement of a bundle of HPWPs has been used in several other studies (e.g., Datta, Guthrie & Wright, 2005; Sels et al., 2006a; 2006b; Sun et al., 2007). Further, the three other HPWPs (attractive wages, work life balance and performance appraisal) were entered separately, because of their earlier differential relationships with employee work experience variables. To examine which of the HPWPs would explain the most between-unit variance in employee work experiences, the three separate work practices and the HPWP bundle were entered step 2 and step 3 respectively. Similar to the previous analyses, the control variables were entered in step 1.

Table 6-9 shows the standardized regression coefficients with regard HPWPs and each of the employee work experiences. Except for career opportunities, effort reward bargain and work life support, Table 6-9 shows that for each of the employee work experiences the HPWPs bundle yielded positive significant relationships. These are found to be stronger than for each of the separate HPWPs in the bundle (see Table 6-8). This indicates that HPWPs in the bundle do not suppress each other's effectiveness, while in combination they constitute stronger relationships. Alternatively, the experience of enough career opportunities and a good effort-reward bargain is clearly more strongly related to attractive wages, just like work life balance intensity is still the most clearly related to experienced work life support. Furthermore, again performance appraisal merely sorts negative relationships, which are (nearly) significant with regard to learning/developmental opportunities and job variety. Besides the unique relationships between the HPWPs and work experiences, experienced work life support and job autonomy are both related to the HPWP bundle and work life balance intensity. However, a *negative* effect was found between the HPWP bundle and experienced work life support, while work life balance intensity relates *positively* to the employee experiences of work life support.

Table 6-9: Regression analyses for Aggregated employee work experiences of a core HPWP bundle

	LP[1]	*JEM*[3]	*DO*[1]	*CO*[2]	*JCL*[1]	*ERB*[1]	*OS*[2]	*JA*[1]	*JV*[1]	*WLS*[2]
Step 1:										
Control Variables										
R² Step 1	*.47*	*.33*	*.23*	*.01*	*.39*	*.01*	*.45*	*.50*	*.05*	*.13*
Step 2:										
HPWPs Intensity										
Attractive Wages	.15	-.16	-.02	.45**	.04	.50**	.31**	.08	-.06	.01
Work-Life Balance	.18	.17	.21	-.24	.47**	.21	.30*	.20	.36*	.53**
Performance Appraisal	-.23#	-.04	-.30#	.12	-.31*	.14	-.14	-.27*	.16	.23#
R² Change Step 2	*.08*	*.03*	*.08*	*.20*	*.19*	*.40*	*.20*	*.07*	*.13*	*.32*
Step 3: HPWP Bundle										
HPWP Bundle	**.60****	**.56****	**.73****	.21	**.29***	.04	**.53****	**.65****	**.32#**	**-.44****
R² Change Step 3	*.18*	*.16*	*.26*	*.02*	*.04*	*.00*	*.14*	*.21*	*.06*	*.10*
R² Total	*.73*	*.52*	*.57*	*.23*	*.62*	*.45*	*.79*	*.78*	*.24*	*.55*

Note: [1] Employee n = 772/ Unit n = 53; [2] Employee n = 671/ Unit n = 47; [3] Employee n = 741/ Unit n = 52.
Note: LP=Learning Possibilities; DO= Developmental Opportunities; JEM = Job Education Match; CO = Career Opportunities; JCL= Job Clarity; ERB = Effort Reward Bargain; OS= Optimal Staffing; J JA = Job Autonomy; V=Job Variety; WLS = Work-life Support; **Note:** HPWPs bundle = Additive score of the HPWPs Training, Career Development, Internal Staffing Efficiency; **Note:** ** p < .01; * p < .05; # p < .10.

Additional analyses: Unit performance effects of a HPWP bundle

Finally, Table 6-10 shows the relationships between the enacted HPWPs and line manager ratings of the general work unit effectiveness as an indicator of work unit performance (see chapter 4 for the measurement details). As expected, model 3 in the table below shows a strong positive significant relationship between the additive HPWP bundle score and work unit performance (β = .47; p < .05). Otherwise, the three single work practices do not have a significant effect on work unit performance. Their regression coefficients even carry a negative sign, which indicates that they are not likely to contribute to work unit effectiveness. In the case of work life balance (β = -.28; p = n.s.), the relatively large weight of this negative coefficient seems to indicate

it tends to diminish work unit performance (although the effect is non-significant). These findings further validate the distinction between a HPWP bundle and the single work practices.

Table 6-10: Regression analyses for single HPWPs, the core HPWP bundle and Work unit performance

	Work Unit Performance		
	Model 1	***Model 2***	***Model 3***
Step 1: Control Variables			
R² Step 1	.07	.07	.07
Step 2: Single HPWPs Intensity			
Attractive Wages	.03	-	-.09
Work-Life Balance	-.09	-	-.28
Performance Appraisal	-.09	-	-.03
R² Change Step 2	*.01*	-	*.01*
Step 3: HPWP Bundle Intensity			
Core HPWP Bundle	-	.30#	.47*
R² Change Step 3	-	*.07*	*.12*
R² Total	*.08*	*.14*	*.20*

Note: Unit n = 53; **Note:** HPWPs bundle measure = Additive score of Functional Training, Career Development, Internal Staffing Efficiency

Note: ** p < .01; * p < .05; # p < .10.

6.4 CHAPTER CONCLUSIONS AND NEXT CHAPTER

The goal of this chapter was to reliably measure and validate High Performance Work Practices (HPWPs) variables by examining their functional effectiveness based on employee experiences of their work and work environment.

Study 1 presented the measurement details of six work practices that fit a HPWS framework. Based on the measurement issues described in Chapter 5, for each HPWPs, line managers and HR professionals rated the degree of the use, the sophistication and the effectiveness of HPWPs at the work unit level of analysis. After running reliability tests which includes matched line management and HR professional item scores, six reliable and meaningful HPWP scales could be constructed.

In *Study 2*, these enacted HPWP measures were further validated by linking them to the work experiences of employees that are exposed to the HPWPs. Here, the results show that to a large extent the HPWPs related to the hypothesized employee work experiences. This indicates that the separate HPWPs indeed each contribute their own share in the improvement of the experienced work situation. The findings confirm that HPWPs to a great extent *do what they ought to do* in the experience of employees. Furthermore, a closer look at the results revealed that most of the HPWPs had more significant relationships with certain employee work experiences than originally hypothesized. In the case of *career development*, *functional training* and *internal staffing efficiency* the relationships were found for largely the same work experiences and in a similar positive direction. Other than the single HPWPs of *work life balance*, *attractive wages* and *performance appraisal*, they were combined into one additive HPWP bundle score. Additional regression analyses confirmed that this HPWP bundle score related the strongest to employee experiences of work characteristics that fit the HPWS framework. HPWPs aimed at work life balance and attractive wages had different but expected effects on experienced work life support and a goof effort-reward bargain respectively. The found relationships and their direction are summarized in Figure 6-6.

Because of the largely non-significant and/or negative effects of performance appraisal on employee work experiences, this HPWP is not displayed in Figure 6-6. To fully validate the HPWP measures in this study, the relationship between the single work practices and the HPWP bundle and work unit performance was examined. Here, it was found that the HPWP bundle is the only HPWP variable that showed a significant effect on work unit performance. All in all, the findings have the following implications for this study's HPWS framework:

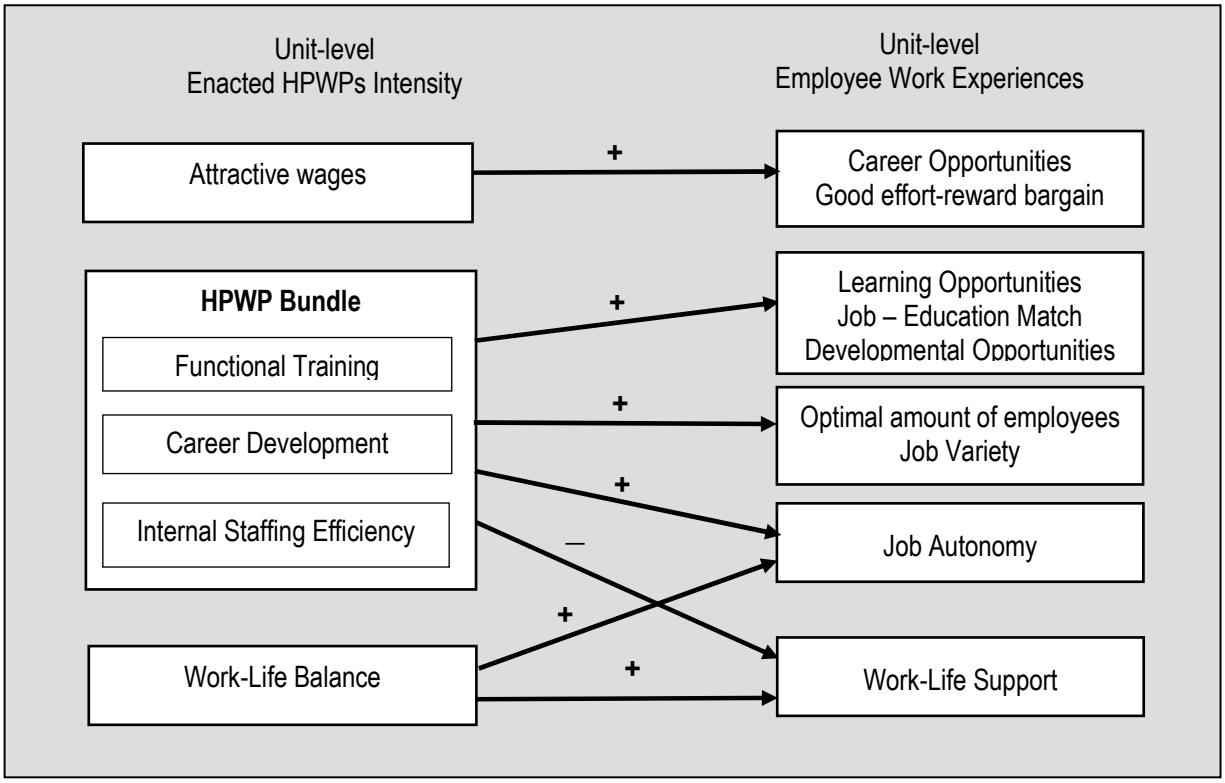


Figure 6-6: Overview of Relationships between Enacted and Experienced HPWPs

- First, it can be questioned whether every work practice is a *high performance* work practice. The overviews by Combs et al. (2006) and Boselie et al. (2005) suggest that a broad range of HRM/work practices have been included in a HPWS research. This study, however, suggests that the extent to which work units intensively enact functional training, career development and internal staffing efficiency signifies the core interventions in line with the High Performance Work System theory. It was shown that these work practices elicit the employee experience of a work situation which provide (1) learning opportunities and a job-educational match that could improve employee *ability*, (2) developmental opportunities and job variety that carry *motivational* potential and (3) an optimal amount of employees/staffing and job autonomy that at least could provide employees with the room and resources to do a good job. The HPWP bundle's additional effect on work unit performance further validates these thoughts.

- Second, the intensity with which a work unit's management seeks to balance employee work life and provide attractive, above-market wages does relate to

employee experiences of work life support and pay satisfaction respectively. However, these practices do not relate to higher work unit performance. This would suggest that these work and organizational factors do not directly affect the operational work process and its effectiveness. In other words, the nature of these HR practices is different and can be regarded as "normal" instead of "high performance" work practices. An interesting finding which also adheres to Herzberg's (1966) classic distinction between "hygiene factors' and "motivators". *Work life balance* and *attractive wages* – as hygiene factors - could possibly do more harm if they were *not* provided for as opposed to the HPWP bundle that - as a motivator - can substantially add a positive influence on employee and work unit outcomes.

- Third, it was also found that the HPWP bundle had a negative relationship with the experience of work life support, which points out that the HPWP bundle could also come at the expense of employee interests or well-being. Given this possibility, a high degree of work life balance and attractive wages might function as important "flanking" work practices that can alleviate adverse employee outcomes of a "core" HPWP bundle. On the other hand, the negative relationship between the HPWP bundle and experienced work-life support should be interpreted with care. In Table 6-8, specifically functional training (being one of the "core" HPWPs) has a strong negative relationship with work-life support, while the correlationmatrix does not reveal such strong negative relationship. Here, controlling for a high educational level of employees (which also has a negative relationship with work-life support) could play a role as for highly educated employee the participation in functional training might more frequently take place outside working hours. Unfortunately, this possibility could not further be examined.

- Fourth, what is striking is the role of *performance appraisal (PA).* As we would expect some relationship with outcomes such as more job clarity and job feedback, no relationships were found. In the additional regression analysis, there were even negative effects of PA on learning/developmental opportunities and job variety. These findings adhere to earlier criticism on PA. For instance, Stiles et al. (1997) argue that PA could result in a too narrow and short-term focus on incentivized goal attainment, which might compromise

the further experience of job variety and the broader personal developmental goals an employee seeks to pursue. It is also not clear whether PA is merely a management control practice that does not have any intention to be in the employee interest (in Boselie et al., 2005). The finding, however, is consistent with an emerging body of evidence that questions the role of "hard" performance appraisals in the HPWS framework (e.g. Vandenberg et al., 1999; Beltran-Martin et al., 2008). Because this dissertation's goal is to distinguish a common ground for the management of well-being and performance, performance appraisal will be excluded from further analyses.

6.4.1 Next Chapter

By distinguishing between different types of HPWP interventions, the next chapter will look at the impact of the core HPWP bundle and flanking work practices on employee vitality. Finally, it will be tested to what extent employee vitality intermediates the HPWS-performance linkage. The grey boxes in Figure 6-7 show the three different HPWP variables and the direct relationship of the HPWP bundle with work unit performance as found in this study.

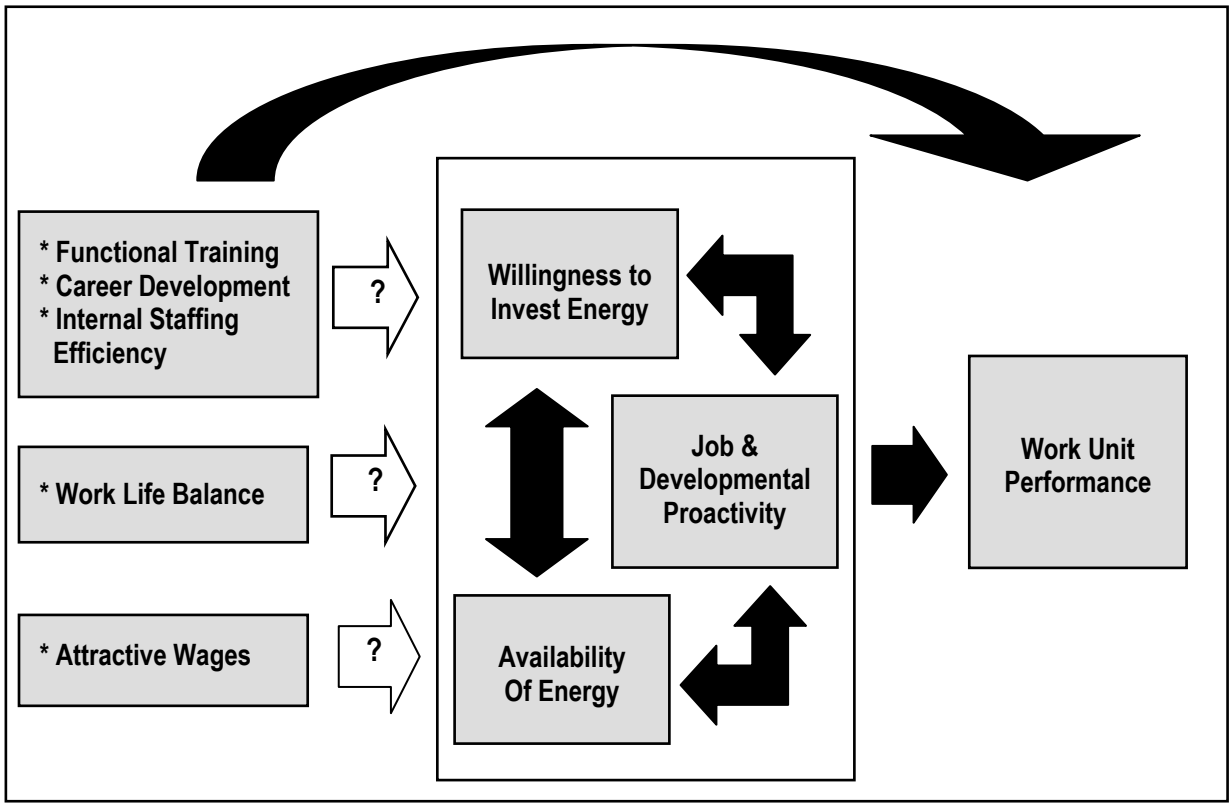


Figure 6-7: This chapter's contribution to the overall research framework

Chapter 7

The intermediating role of employee vitality in the HPWP-Performance linkage

7.1 INTRODUCTION

Turning to the last stage of this dissertation's overall research framework, this chapter examines the role of employee vitality in the link between the distinguished "core" HPWP bundle, "flanking" work practices and work unit performance. As described in chapter 3, employee vitality is assumed to characterize a vigorous and proactive employee who takes initiative and can healthily cope with the work complexities and uncertainties within increasingly dynamic work contexts (Murphy & Jackson, 1999; Griffin, Neal & Parker, 2007). An examination of the extent to which manageable work and organizational factors positively impacts employee vitality, contributes to an emerging stream of research that seeks to open the "black box" between HRM and performance. In addition, the inclusion of the concept of employee vitality not only seeks to unravel the intermediating process between HRM and performance, but also the process that simultaneously sustains employee well-being. Employee vitality discerns a combination of "active" employee attributes, which go beyond the mere "passive" attributes of job satisfaction, commitment and

strain which have been popular objects of study over the last decades (Parker, 2000; Frese & Fay, 2001). However, as contemporary organizations are urged to quickly respond to changes in their market and institutional environment, this asks more of employees than their affect towards the organization or the absence of job stress. Therefore, as an "active" performance concept (Frese & Fay, 2001; Parker et al., 2007), employee vitality captures those workforce attributes that are argued to match the organizations' human *resources* needed to perform successfully in the contemporary work arena (Fay & Kamps, 2006; Boxall & Purcell, 2003). As an "active" well-being concept, employee vitality can be regarded as a employee touchstone for the management of an "sustainable" workforce (Fay & Kamps, 2006) which is considered to contribute to organizational effectiveness through higher labour productivity without compromising (future) employee well-being. However, empirical research on the managerial determinants and outcomes of employee vitality is still scarce. To provide insight in how organizations can benefit from *management by vitality*, this chapter empirically addresses two important issues. First, to what extent do high performance work practices (HPWPs) influence employee vitality? In other words, how manageable is employee vitality? Second, to what extent does employee vitality intermediate the proposed link between HPWPs and performance outcomes?

7.1.1 Goal and structure of this chapter

The goal of this chapter is to examine the role that employee vitality plays in the linkage between HPWPs and performance outcomes at the work unit level. In the previous chapter, the enactment of a core HPWP bundle (consisting of functional training, career development and internal staffing efficiency) was already found to positively relate to work unit performance. Otherwise, work practices that stimulate work life balance and foresee in attractive (above-market) wages did not relate to work unit performance but could enhance employee well-being outcomes. Therefore, these practices are all included in this chapter. Furthermore, in chapter 4, it was already found that the degree of employee vitality in high performing work units exceeds the degree of employee vitality in less performing work units. In order to unravel how HPWPs, employee vitality and work unit performance relate to each other, this chapter is divided in two studies. The first part of this chapter (*Study 1)* more closely examines the impact of HPWPs (as defined in chapter 5 and 6) on dimensions of employee vitality. Here, multilevel analyses are conducted, because the enactment of HPWPs is considered a work-unit level phenomenon and employee

vitality is an employee attribute at the individual level. In the second part of this chapter (*Study 2*), it is examined to what extent employee vitality in a work unit intermediates and, therefore, could explain how HPWPs impact work unit performance outcomes. This study follows the HPWS framework (Appelbaum et al., 2000) depicting the intermediating role of discretionary behaviour between HPWPs and organizational performance. Because this chapter draws on the principles of the job demands-resources model (Demerouti, Bakker, Nachreiner & Schaufeli, 2001), the analyses underpinning both studies will include the role of quantitative and emotional work demands. We close this chapter with an overview of what is left of this dissertation's initial research framework.

7.2 STUDY 1: HPWS DETERMINANTS OF EMPLOYEE VITALITY

7.2.1. Previous research at the individual level

Research on work and organizational factors that affect the two vitality components of employee proactivity and employee vigour has traditionally focused on determinants at the individual employee level. For example, Karasek's (1979) job demand-control model aimed at explaining the effect of individual job characteristics on employee strain as well as "active" employee learning behaviours. High job demands would challenge and activate employees, but only to the extent that the work situation provides employees with enough job control to deal with high job demands. Subsequently, the interplay between job demands and job control has brought forth a large stream of empirical research on two different hypotheses: a *buffering-thesis* and an *active learning–thesis*. First, in the buffering-thesis, it is proposed that job control moderates the effect of job demands on job strain, such that high demands do not cause adverse health effects when employees possess sufficient control over their job. Van der Doef and Maes (1999) found that the majority of empirical studies concentrated on the buffering-thesis, although with mixed findings. Second, the active learning-thesis states that the interaction between high demands and high levels of job control would energize employees into active learning behaviours, feelings of mastery and competence. Although appealing and relevant in the context of employee vitality, empirical tests of this *active learning-thesis* have not generated convincing results (Taris, Kompier, De Lange, Schaufeli & Schreurs, 2003). Although the research interest in Karasek's interaction hypotheses continues, other

theoretical models have begun to expand Karasek's job demands-control model and its theoretical assumptions. One that has gained a great deal of attention is the job demands-resources model (JDR; Demerouti, Bakker, Nachreiner & Schaufeli, 2001). This more comprehensive model contains two features that differ from Karasek's initial model. First, it takes a broader perspective on the job demands and resources in the employee work context, by including multiple demands (e.g., workload, emotional demands, work-home conflict, role overload) and multiple job resources (e.g., job autonomy, developmental possibilities, rewards, participation, or supervisor support). Second, with regard to the outcomes of these employee job characteristics it does not assume an interaction between job demands and job resources *per se*. For instance, Schaufeli and Bakker (2004), Bakker, Demerouti and Verbeke (2004) and Van Veldhoven, Taris, de Jonge and Broersen (2005) describe and find two different explanatory routes that, independent of each other, link high job demands to adverse health/burn-out outcomes and high job resources to positive employee outcomes like feeling vigourous and dedicated (*engagement*) and extra-role behaviours (OCB; Organ, 1988). Therefore, based on the well tested job demands-resources model, it could be hypothesized that adopting a set of HPWPs (which impact a range of the job resources in de JDR model - see chapter 6) would positively relate to employee vigour *and* employee proactivity. This supports the proposition that HPWPs could positively impact both the active performance and active well-being aspects of employee vitality.

7.2.2 Differential impact of job demands and job resources

Although the job demands-resources model would suggest that merely a high degree of job resources would enhance "active" employee outcomes, other studies also confirm that also job demands can *positively* affect proactivity and performance outcomes (e.g., Ohly, Sonnentag & Pluntke, 2006). Similarly, just like the possible differential effects of job demands, it can be argued that job resources have differential effects on active employee outcomes. These possible differential effects are important to the extent that ignoring them could blur the picture of how work and organizational factors impact employee vitality. Therefore, they are elaborated on below.

Differential effects of job resources

In tests of the job demands-resources model, all job resources are treated the same. In other words, each type of resource (e.g., job autonomy, developmental possibilities or rewards) is included as an indicator of a latent (experienced) resourceful work situation which is found to relate to certain attitudinal, behavioural and health-related outcomes. Although the choice for the included job resources can dependent on the specifics of the job or organizational context (Demerouti et al., 2001), overall, it is assumed that a "resource is a resource" - independent of the criterion variable under study. However, in defining job resources, relationships with outcome criteria are included. Specifically, Bakker et al. (2004) refer to job resources as 'those physical, psychological, social and organizational aspects of the job that are (1) functional in achieving work goals, (2) reduce job demands and the associated physiological and psychological costs; or (3) stimulate personal growth and development' (p. 86). Interestingly, the assumption of an overall combination of work and organizational factors that would relate to a multitude of favourable employee and organizational outcomes also underlies much of the organizational-level HPWS literature. But here, our results in chapter 6 showed that different HPWPs evoke employee experiences of different job resources. Also, not all of the examined work practices were found to be related to work unit performance, which emphasize the differential effects of HPWPs as "objective" job resources.

Differential effects of job demands

Predominantly, research on the job demands-resources model find less favourable outcomes as a result of high job demands in terms of greater feelings of exhaustion and less job performance (Bakker et al., 2004). However, Karasek (1979) already stated that job demands challenge and energize employees. Similarly, Jex (1998) stated that without any demands it is not likely that employees will expend any effort towards organizational goals. Recent findings also indicate that high arousal does not have to constitute a negative impact on job performance outcomes *per se*. Hunter and Thatcher (2007) found positive relationships between felt stress and sales performance for highly experienced and committed employees. Additionally, a recent meta-analysis by LePine, Padsokoff and LePine (2005) revealed a distinction between *hindrance stressors* (e.g. organizational politics, red tape, role ambiguity) which are negatively related to job performance and *challenge-oriented stressors* (e.g., high workload, time pressure, job scope) which positively relate to job performance

while still being able to evoke adverse health outcomes like fatigue. Overall, these findings indicate the complex relationship between job demands and either employee performance or well-being. Therefore, with regard to employee vitality as an active performance and well-being concept, job demands might play a different role towards each of the dimensions of employee proactivity and vigour. Because of the apparently ambiguous impact of job demands on employee well-being and performance they will be further included.

7.2.3 Determinants of employee vitality: A multilevel approach

Based on the issues described above, "objective" job resources are modelled at a work unit-level in terms of the enacted HPWP bundle and "flanking" work practices as described in Chapter 6. Job demands are examined at the individual level. For both aspects differential relationships are expected with regard to employee proactivity and employee vigour. Figure 7-1 shows a conceptual model of Study 1 of which the hypotheses are described next.

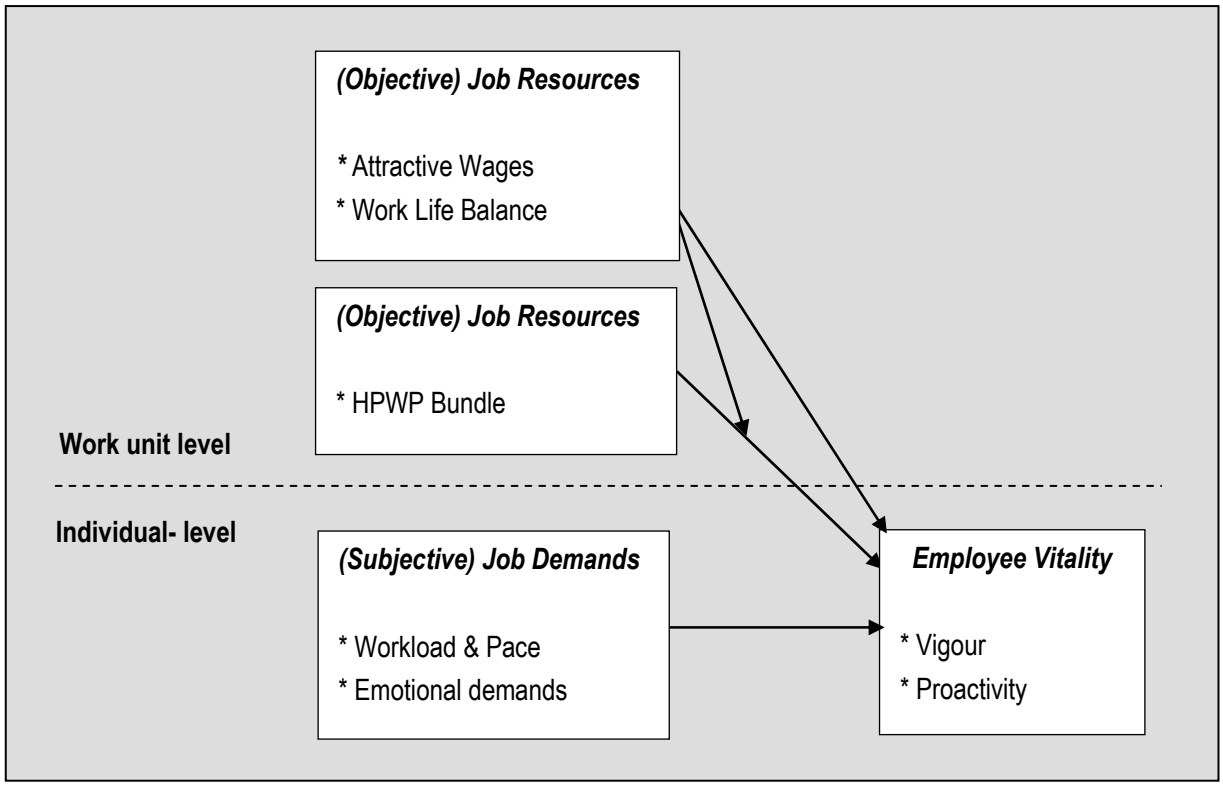


Figure 7-1: A Multilevel Determinants of Employee vitality (Study 1)

7.2.4 Individual-level determinants: Job Demands

In general, high job demands are believed to impair proactive employee behaviours as high job-focused effort expenditure would exhaust the resources to expend extra effort on extra-role behaviours like taking initiative or being proactive (Bakker et al., 2004). In contrast, Fay and Sonnentag (2002) take a control-theoretical perspective (Carver & Scheier, 1982), which states that employees proactively self-regulate the demands in the work environment that would also impair their health. In doing so, high demands can impair employee health and performance, but this signals employees to proactively take action either by initiating changes in the (external) work process or through upgrading (internal) skills, knowledge and abilities (Folkman & Lazarus, 1984). High demands would therefore trigger employee proactivity in order to restore present and future optimum levels of performance and health. In line with this reasoning, Fay et al. (2002) and Ohly, Sonnentag and Pluntke (2006) indeed found a positive relationship between time pressure demands and personal initiative. Our first hypothesis reads:

Hypothesis 1a: High job demands relate positively to employee proactivity

With regard to active health concept of employee vigour, we expect that high job demands would drain the employee's energetic resources. This follows the traditional burn-out process, in which high demands require sustained physical and mental effort and involves physical and psychological costs (Maslach & Leiter, 1997; Schaufeli & Bakker, 2004). The higher the demands, the more they will exhaust the energetic resources up to a point that more effort expenditure would lead to health damaging effects. Therefore, alongside the process of energy depletion, the willingness to expend extra effort will drop in order to conserve the minimal necessary energetic resources (Hobfoll, 1989). Hence, the second hypothesis reads:

Hypothesis 1b: High job demands relate negatively to employee vigour

7.2.5 Work unit-level determinants: core and flanking HPWPs

In the more intervention–oriented HPWS literature, Chapter 6 examined the extent to which certain HPWPs elicit certain employee experiences of job resources. In relation to the proactivity and vigour dimension of employee vitality, there has been little

research on the direct impact of work unit–level enacted HPWPs on these employee outcomes. Research by Tsui, Pearce, Porter and Tripoli (1997) and Sun, Aryee and Law (2007) do find a positive relationship between management ratings of HPWPs and employees engaging in organizational citizenship behaviour (OCB). One of the most promising studies is by Beltran-Martin et al. (2008), who tested the effect of an overall HPWS measure on a measure of human resource flexibility, which consisted of dimensions similar to job and developmental employee proactivity. Their results show that a bundle of HPWPs had an effect on organizational sales performance via the enhancement of human resource flexibility. But as was found in Chapter 6, not all HPWPs affect the same employee work experiences. So are there differential relationships with the employee vitality dimensions, which, different from the human resource flexibility measure, consists of employee proactivity *and* employee vigour?

"Core" HPWP bundle

With regard to the enhancement of job and developmental proactivity, it is expected that the work unit's HPWP bundle (including a high emphasis on functional training, career development and internal staffing efficiency) will have the strongest effect. Our earlier findings in Chapter 6 show that a HPWP bundle affects *skill-related* aspects (experienced learning/developmental opportunities and job-educational match), *work organizational-related* aspects (optimal staffing levels) and *job design-related* aspects (job variety and to some extent job autonomy). In describing the antecedents of employee initiative taking (which approaches the proactivity concept), Frese and Fay (2001) distinguish between the employee's knowledge, skills and abilities (KSA) and work and organizational conditions of control and complexity that would promote employee proactivity. Both aspects are found to be related to the employee's cognitive control or self-efficacy (the feeling that one possesses the mastery to handle the job well) and task control (the feeling that one has control over how the job is done). When employees feel in control of their work situation and the outcomes of their work, Frese and Fay (in Parker et al., 2007) argue 'they will have a strong sense of responsibility, will not give up easily, will search for opportunities to act, should have hopes for success (and therefore a long term perspective), and will actively search for information' (p. 638). This is also helpful with regard to the employee's confrontation with possible negative consequences of

taking initiative or behaving proactively by "challenging the status quo" (Crant, 2000). Therefore, the hypothesis reads:

> **Hypothesis 2a:** The HPWP bundle (consisting of functional training, career development and internal staffing efficiency) relates more strongly to employee proactivity than to employee vigour

"Flanking" work practices

Alternatively, for the intensity of the flanking practices concerning *work life balance* and *attractive wages*, a stronger relationship with employee vigour is expected. As they were found to be more strongly related to the employee experience of a good effort reward bargain, financial growth opportunities and work life balance support, they possibly act as "compensatory" practices. As such, they provide good financial compensation and adequate time compensation in favour of the employee. Following the norm of reciprocity (Gouldner, 1960), attractive above-market wages can be argued to evoke an employee's willingness to invest energy in the job. Otherwise, Vandenberg et al. (1999) argued that work life balance practices give employees more control over their work-life situation. This type of work time control gives employees the opportunity to combine the requirements of work and life, which would prevent the depletion of employee energy that is found to follow from conflicts between work and life/family obligations (Demerouti, Taris & Bakker, 2007). Therefore, it is expected that attractive wages and work life balance arrangements relate more strongly to employee vigour.

> **Hypothesis 2b:** Attractive wages and work life balance arrangements relate more strongly to employee vigour than to employee proactivity

"Core" x "Flanking" work practices

Above, the core HPWP bundle, attractive wages and work life balance arrangements are treated as separate HPWP determinants of employee vitality. However, combinations might constitute additional effects. This follows a "systems" (Delery, 1998) approach to HRM, which states that work practices are interrelated and should interact or work together in achieving their effects (Ichniowski et al., 1997). For example, Delery (1998) notes that when organizations highly invests in training and development programs without ensuring that pay-levels are competitive, they run

the risk that the training/development investments will not pay off because employees intentd to leave the organization for higher pay elsewhere. Otherwise, Osterman (in White, Hill, McGovern, Mills & Smeaton, 2003) reports that US organizations that adopt HPWPs also adopt flexible working time or career-break practices in order to provide more scope to balance work demands with the employee's family and/or non-work obligations. Additionally, White et al. (2003) indeed found a buffering effect of work life practices (e.g. flex-time arrangements) on the impact of HPWPs on negative *job-to-home spill over* (the adverse effect of work on partners' and family life). In a similar vein, in chapter 6, we also found a negative relationship between the HPWP bundle and employee experiences of work life support. When taking into consideration the possible interactions between the core HPWP bundle and either attractive wages or work life balance arrangements, two interaction effects can be expected. The first states that attractive wages support an additional effect of a HPWP bundle towards employee proactivity, because high wages could commit employees to their job/career within the *same* organization. Second, we expect that work-life balance arrangements support an additional effect of a HPWP bundle towards employee vigour because of a likely reduction of the risk that a HPWP bundle negatively impacts employee vigour through increased conflicts between work demands and one's private non-work situation. This leads to the following hypotheses:

> **Hypothesis 3a:** Attractive wages moderate the relationship between HPWP bundle intensity and employee proactivity; this relationship is stronger when the enactment of attractive wages is more intense.

> **Hypothesis 3b:** Work Life Balance moderates the relationship between HPWP bundle intensity and employee vigour; this relationship is stronger when the enactment of Work Life Balance practices is more intense.

7.4 METHODS

Data collection, sample structure and response

Similar to the data gathering procedure described in Chapter 6, this data were collected as a part of a study including management interviews and employee

surveys conducted between May 2006 and February 2007. Within a total of 12 organizations, data were collected at the operational, first-line management level, which resulted in a working sample of 53 work units providing management reports on enacted high performance work practices and employee self-reports on job demands and employee vitality. Figure 7-1 shows the sample structure.

Table 7-1: Sample structure, # raters, # matched line-HR rating, survey response

Sector	Organization	# Work units	# HR Raters	# Line Raters	# Matched Ratings	# Distributed Surveys	Surveys (% response)
Services	Security Services	3	1	3	3	226	53 (24%)
	IT Consultancy	1	1	1	1	31	20 (65%)
	Policy Research	2	2	1	2	63	43 (68%)
	Financial / Bank	6	6	6	6	111	101 (91%)
Industry	Technical Support	2	1	2	2	72	18 (25%)
	Repair Services	7	1	7	7	278	100 (36%)
	Construction	4	1	4	4	123	52 (42%)
	Quality Control	1	1	1	1	40	30 (75%)
Government	Customs / Control	4	1	4	4	112	61 (54%)
	Local Government	2	1	1	2	27	11 (41%)
Medical/Care	Hospital	14	6	14	14	507	207 (41%)
Education	Elementary School	*7*	*3*	*7*	*7*	*205*	*68 (33%)*
Total/Average		*53*	*25*	*51*	*53 (100%)*	*1795*	*764 (43%)*

In order to measure enacted HPWPs, we targeted at structured face-to-face management interviews in all 53 work units. For each of the work units we obtained data directly from the first-line managers responsible for the execution of HRM activities in the work units. In two cases, line managers had an interim-responsibility for one other work unit, which makes that 51 line raters account for 53 work ratings. Furthermore, for each of the work units, we also obtained matched data from internal HRM advisors, managers or specialists who were functionally linked to the line managers. By including two raters for the same work unit we partly control for the large amount of measurement error found in single-rater studies on HRM practices (Gerhart, Wright, McMahan & Snell, 2000). For each of the included work

units, we obtained employee data on experienced job demands an employee vitality, of which the items were included in a larger employee survey conducted throughout the whole organization. For the selected work units, a total of 1795 non-managerial employees received hard-copy or (electronic) web-based questionnaires. In all cases, except the electronic ones, stamped envelopes were attached to the questionnaires, which were addressed directly to the author's university address. In total, 764 completed questionnaires could be used; an average response of 43%.

Sample Characteristics

Line/HR Sample Of the 51 line-managers who rated HPWPs in 53 work units, 80% were male with average job tenure of 4 years. Of the 25 HR advisors 56% were male, with average job tenure of 5 years. Line managers reported an average frequency of 3-4 times per month where there was formal contact between line and HR (e.g., meetings).

Employee Sample The sample constitutes a mixture of higher skilled and lower skilled functional categories, such as nurses, IT consultants, security agents, teachers, policy advisors, mortgage advisors, technicians and operators. The average age in the total sample was 41.0 years. Of the employee sample 50.3% is male. In the sample, 36.9% of the employees have a higher vocational training or a university degree. The average number of contractual hours/week is 32.3 (SD = 10.1 hours/week), and the average number of years in the organization is 10.8 (SD = 10.2 years).

Enacted HPWPs Measures

In chapter 4 and 5, the exact measurement issues concerning the enacted HPWPs can be found. For this study, we included three separate HPWP variables. See the appendix of chapter 4 for an overview of the items that were included.

HPWP bundle Following the results from Chapter 6, a HPWP bundle score was composed on the basis of the additive scores of three HPWPs. For the intensity in the enactment of *functional training*, *career development* and *internal staffing efficiency*, we found similar effects on employee work experiences. This justified the predictive validity of an additive "bundle" score to the extent that a number of HPWPs in a bundle are likely to have greater explanatory strength towards the same employee outcomes. In contrast, bundling HPWPs that work at cross purposes (although in organizational practice they could be found to be consistently adopted together)

would not be appropriate. As such, adding up the three separate and reliable HPWP intensity scores (which each could range from 1-5) composed a *HPWP bundle* intensity score (see also, Sun et al., 2007; Sels et al., 2006a, 2006b). Consequently, the HPWP bundle score ranges from 3-15.

Attractive Wages/Benefits The attractive wages measure included 10 items. Respondents rated a diversity of aspects including the wage level as opposed to comparable organizations and the extent managers have leeway in negotiating wage levels when good employees threaten to leave the work unit. Scores on this measure ranged from 1 to 5, indicating the level or intensity of attractive wages. For this separate HPWP scale the reliability was .73.

Work Life Balance The work life balance measure included 5 items that tap the extent to which a work unit makes use of certain work life arrangements (e.g., flex-time, alternative weekly work hours (e.g., 4 x 9 hours, opportunity to temporarily work part-time) and that the work unit can adjust to changes in the individual employee's personal life. Scores on this measure ranged from 1 to 5, indicating the intensity of enacted work life balance arrangements. For this single HPWP the reliability was .70.

Experienced Job Demands Measures

For the measurement of experienced job demands we included two measures.

Quantitative workload First, a "pace & amount of work" measure refers to quantitative workload in a limited sense: how much work is there to be done in how much time? The items were taken from the validated VBBA questionnaire (Van Veldhoven & Meijman, 1994) and reflect the JCQ quantitative workload questions (Karasek et al., 1985). A sample item is '*Do you work under time pressure?*'. Employees could answer on a 4 point scale (*1 = 'never' to 4 = 'always'*). The reliability of this 6-item scale was .85.

Emotional demands Second, we included an "emotional job demands" scale, which reflects the degree to which employees are confronted with work situations that demand emotional reactions in interactions with colleagues, customers or patients. A sample item is 'I*n your work, are you confronted with things that affect you personally*?'. Respondents could answer on a 4-point scale (*1 = 'never' to 4 = 'always'*). Also this measure was taken from the VBBA questionnaire. The reliability of this 4-item scale was .68.

Employee Vitality Measures

The employee vitality components of proactivity and vigour were measured with new scales in the Dutch language. For the background and validity of the employee vitality measures described below, we refer to chapter 4.

Job Proactivity For *job proactivity*, we included 5 items that were partly derived from the Personal Initiative Scale (Frese Fay, Hilburger, Leng, & Tag, 1997) and the Taking Charge Scale (Morrison & Phelps, 1999). First, three items reflect the extent to which employees initiate new ways of working and solve problems when work processes contain inefficiencies, (*'In my work, I make suggestions to improve the way we work'; 'When work methods or procedures are not effective, I try to do something about it'* and '*When something is not right in the way work is done around here, I try to improve it'*). Second, one item taps the degree of employees taking initiative to challenge the status quo (*'I take initiative even when others don't).* Third, because implementing new initiatives often needs supervisor support, we included one item to ask whether employees take action by actively discussing improvements with their direct supervisor (*'I discuss work methods with my supervisor, when I think they could be improved').* Items were answered on a 5-point scale (*1 = 'largely disagree' to 5 = 'largely agree'*). The reliability of this scale was .89.

Developmental Proactivity To measure *developmental proactivity* we included 5 items that were partly derived from the Learning Motivation Scale (Taris, Kompier, De Lange, Schaufeli & Schreurs, 2003) and the Job Aspiration Scale (Warr, 1990). Following the reasoning of Karasek and Theorell (1990) and Taris et al. (2003), the items reflect the degree of taking action to change one's behavioural patterns. We included three items that tapped the degree to which employees set challenging goals and actively look for situations in which they can expand their skills and knowledge (*'In my work I set myself challenging goals'*, '*In my work, I search for people from whom I can learn something'* and *'In my work, I keep trying to learn new things'*). Furthermore, we included two items that tapped the degree to which employees are concerned with and self-assess future skills and knowledge needs, as well as take action to adapt to these estimated future needs *('I think about how I can keep doing a good job in the future'* and *'With regard to my skills and knowledge, I see to it that I can cope with changes in my work'*). Items were answered on a 5-point scale (*1 = 'largely disagree' to 5 = 'largely agree'*). The reliability of this scale was .82.

Availability of Energy For measuring the *availability of energy* we used 5 items that were modelled after vigour-items in the Utrecht Work Engagement Scale (Schaufeli et al., 2002) and the Subjective Vitality Scale (Ryan & Frederick, 1997). The answering scale asks respondents to rate the frequency of feelings of energy during the whole work day in 4 points (*1 = 'never' to 4 = 'always'*). Through this we control whether levels of energy do not systematically get drained during the workday. With the items we aimed at stable levels of energy from the beginning to the end of the work day *(e.g., 'At the beginning of a working day I have plenty of energy', and 'By the end of the working day I can still adequately concentrate on my work').* The reliability of this scale was .83.

Willingness to Invest Energy For measuring the employee's *willingness to invest energy* into the job, we used 4 reversed coded items originally part of the *task resistance* scale retrieved from the VBBA questionnaire (Van Veldhoven & Meijman, 1994). On these items, respondents scoring low on their resistance to do and invest in their job (tasks) are then likely to score high on the willingness to invest and expend effort into their job tasks *(e.g., 'I do my work because I have to, and that says it all'* and *'I have to continually overcome my resistance in order to do my work; reverse coded, 1 = 'strongly agree' to 5 ='strongly disagree').* The reliability of this scale was .81.

Control Variables

In our analysis, we controlled for three individual-level demographic variables (gender, age, education) and 1 variable at a higher level (work unit size). It is regarded important to control for these variables because they may influence employee vitality dimensions. For instance, a higher age could mean further progression in an employee's career stage which reduces a proactive orientation to one's future development (Warr & Fay, 2001). To control for individual demographic differences, we included a continuous scale for employee age and categorical indicators for gender (*1 = female*) and education (*1 = 'lower education'; 6 = 'higher education'*). To control for work unit size, we took the absolute number of distributed surveys per work unit while the survey research was targeted at surveying all employees in the selected work units.

Analytical Procedure

The four dependent vitality variables to be tested in this study are all at the individual level (job proactivity, developmental proactivity, availability of energy,

willingness to invest effort). Table 7-2 shows that for the employee vitality variables, a significant amount of variance is explained at the work unit level (ICC1). This suggests that it is important to explain variance at the individual level in these dependent variables, but also to try to explain variance in employee vitality that is shared by work unit members. This, taken together with the fact that independent variables are measured at the individual level and the work unit level, makes an Ordinary Least Squares regression not appropriate for testing the determinants of employee vitality. Therefore, multi level analysis is the statistical tool of choice for the current study (Bryk & Raudenbusch, 1992; Klein & Kozlowski, 2000).

Table 7-2: F –tests and ICC values for employee vitality scales

Scale Name	F-test	ICC(1)	ICC(2)
Job Proactivity	1.685**	.05	.41
Developmental Proactivity	2.074**	.07	.51
Availability of Energy	1.770**	.05	.44
Willingness to invest Energy	5.043**	.21	.80

Employee *n* = 764; Work unit *n* = 53; ** p < .01; * p < .05

Multi-level analyses were performed (using MLWIN version 2.02). First, all variables first were standardized. Stepwise, the control variables were entered in step 1, the individual-level job demands in step 2, the three work unit level HPWP variables in step 3 and two HPWP interaction terms in step 4. Four equations were computed: two equations with proactivity as the dependent variable (job and developmental proactivity) and two equations with vigour as the dependent variable (availability of energy and willingness to invest energy). For all independent HPWP variables only fixed effects are assessed in the equation, as there is only systematic variation between the units. For the individual-level independent variables, also fixed effects were entered into the equation. The multi-level analysis results in estimates and standard errors for each of the independent variables. They were evaluated for significance using the T-statistic.

Table 7-3: Means, Standard Deviations and Correlations (individual level)

		M	SD	1	2	3	4	5	6	7	8	9	10	11	12
1	Gender (1=female)	0.5	0.5												
2	Age	40.9	10.5	-.06											
3	Education (6 =high)	3.8	1.3	-.00	-.17**										
4	Work Unit Size	40.1	28.8	-.02	.08*	-.31**									
5	Workload	2.0	0.5	-.06	-.03	.08*	-.14**								
6	Emotional demands	1.9	0.5	.00	.02	.34**	-.17**	.29**							
7	HPWP Bundle	9.2	1.4	.18**	.28**	.30**	-.34**	-.08*	.27**						
8	Attractive Wages	2.8	0.6	.14**	.05	-.04	-.07	-.07	.04	.39**					
9	Work Life Balance	3.5	0.8	.23**	.23**	.17**	-.25**	-.05	.11**	.61**	.26**				
10	Job Proactivity	3.9	0.6	-.09	.13**	.09*	-.00	.03	.20**	.16**	.01	.09*			
11	Developmental Proactivity	3.9	0.5	-.03	-.02	.15**	-.10**	-.00	.18**	.12**	-.01	.00	.47**		
12	Availability of Energy	2.9	0.5	.04	.18**	-.05	.04	-.22**	-.00	.17**	.14**	.12**	.29**	.29**	
13	Willingness Invest Energy	3.8	0.8	.12**	.28**	-.02	-.04	-.18**	.07	.37**	.16**	.28**	.29**	.31**	.47**

Note: Employee n = 764; ** p < .01; * p < .05

7.4 RESULTS STUDY 1

7.4.1 Descriptive statistics and correlations

Table 7-3 shows the descriptives and correlations of the main variables in this study. They represent the correlations at the individual-level containing disaggregated scores for the HPWP variables. The matrix shows that the "core" HPWP bundle constitutes correlations with all four vitality scales. As expected, attractive wages and work-life balance arrangements are positively correlated with the two employee viour scales, but show weaker or no significant positive correlations with the two employee proactivity scales. Furthermore, it appears that employee age has a clear positive significant relationship with employee vigour. The multi-level tests are described in the next paragraph.

7.4.2 Multi-level results for the determinant of employee vitality

Table 7-4 shows the results of step 3 and step 4 of the multi-level analysis for the individual and work unit determinants of employee vitality. When the added variables in step 4 did not improve the model, we discuss the results shown in step 3.

Control variables

Overall, the control variables show no significant effects, with the exception of gender (female) and age which related positively to job proactivity. There were also strong positive relationships between age and both dimensions of employee vigour.

Job Demands

As was expected, experienced job demands are found to be positive related to employee proactivity, while they relate negatively to employee vigour. The results show that more emotional demands link positively to both job and developmental proactivity. However, it is the degree of workload that has a negative relationship with the availability of energy and willingness to invest. On the one hand, this distinguishes qualitative from quantitative job demands in relationship to employee vitality and implies that not all demands have similar effects. On the other hand, the clear pattern of a positive relationship for proactivity versus a negative relationship for employee vigour emphasizes the distinctive character of both vitality components. Qualitative job demands can trigger active behavioural outcomes, while quantitative demands can diminish active health outcomes.

Table 7-4: Multi-level analyses for Job demands and HPWPs on Employee Vitality

	Job Proactivity				Developmental Proactivity				Availability of Energy				Willingness to Invest Energy			
Control variables	***Step3***		***Step 4***		***Step 3***		***Step 4***		***Step 3***		***Step 4***		***Step 3***		***Step 4***	
Constant	.000	(.036)	.019	(.047)	.025	(.040)	.002	(.052)	.002	(.035)	.046	(.047)	.038	(.045)	.063	(.053)
Gender (1=female)	.111**	(.036)	.112**	(.036)	.026	(.038)	.026	(.038)	.011	(.036)	-.012	(.036)	-.039	(.036)	-.038	(.036)
Age	.073#	(.039)	.070#	(.039)	-.023	(.040)	-.021	(.040)	.137**	(.039)	.135**	(.039)	.151**	(.036)	.144**	(.036)
Education (1=low; 6=high)	.013	(.042)	.015	(.043)	.049	(.044)	.046	(.045)	-.037	(.042)	-.027	(.042)	-.069	(.042)	-.071#	(.041)
Work Unit Size	.054#	(.030)	.042	(.034)	-.034	(.036)	-.023	(.056)	.021	(.030)	.005	(.034)	.025	(.043)	-.013	(.042)
Individual Job demands																
Workload	-.004	(.037)	.000	(.038)	-.058	(.039)	-.062	(.039)	-.202**	(.037)	-.196**	(.037)	-.121**	(.036)	-.118*	(.036)
Emotional demands	.172**	(.040)	.169**	(.040)	.138**	(.041)	.140**	(.041)	.037	(.039)	.034	(.039)	.008	(.039)	.010	(.082)
Work Unit HPWPs																
HPWP Bundle	**.143***	**(.055)**	.111	(.072)	**.141***	**(.061)**	**.178***	**(.080)**	**.099#**	**(.055)**	.034	(.072)	**.343****	**(.065)**	**.258****	**(.082)**
Attractive Wages (AW)	-.045	(.040)	-.046	(.042)	-.038	(.044)	-.034	(.047)	**.084***	**(.040)**	.068	(.042)	-.013	(.049)	.019	(.049)
Work Life Balance (WLB)	.025	(.046)	.010	(.050)	**-.096#**	**(.051)**	-.080	(.056)	.003	(.045)	-.027	(.050)	.036	(.058)	.010	(.057)
HPWPs Interactions																
HPWP Bundle x AW			-.043	(.062)			.034	(.069)			-.061	(.053)			**-.212****	**(.070)**
HPWP Bundle x WLB			-.006	(.054)			.020	(.060)			-.029	(.062)			.086	(.061)
- 2Log Likelihood	2103.012		2102.391		2125.834		2125.314		2092.924		2090.789		1979.502		1970.725	

Note: Employee *n* = 764; Work unit *n* = 53; ** p < .01; * p < .05; # p < .10

Note: Standard errors are in parentheses

HPWP Bundle

For the HPWP bundle representing the intensity of the work unit's enactment of functional training, career development and internal staffing efficiency, we found positive relationships with all four employee vitality scales. This confirms our initial hypotheses to a great extent. However, more specifically, we predicted a stronger relationship with employee proactivity than with employee vigour. This was found for employee energy of which the strength of the relationship was smaller and nearly significant ($p < .10$). However, for the employee's willingness to invest energy, the results show the strongest positive relationship with the HPWP bundle, which is partly contrary to our hypotheses. All in all, the finding that a HPWP bundle makes a positive difference for indicators of employee proactivity *and* vigour confirms the important role "objective" job resources play in promoting employee vitality, also when controlling for job demands.

Attractive wages / Work Life Balance

For the separate HPWPs it was hypothesized that they would constitute a stronger relationship with employee vigour. The results show that the extent to which a work unit provides attractive wages relates positively to the employee's availability of energy, which partly confirms the hypothesis. However, the remaining relationships with both the employee's willingness to invest energy and proactivity were not significant. This indicates that these HRM practices do not play a convincing role with regard to the promotion of active employee outcomes. In addition, the results also show a small negative and nearly significant effect of work life balance practices and developmental proactivity.

Interaction effects

Following the absence of significant relationships of attractive wages and work life balance arrangements with employee vitality, the interaction with a HPWP bundle also did not reveal any positive significant relationships. Surprisingly, we did find a strong but negative interaction effect between HPWP bundle and attractive wages on the willingness the invest energy. Taking into account the strong positive effect of a HPWP bundle on the employee's willingness to invest energy, the negative interaction indicates that providing attractive wages buffers or tempers the positive effects of an HPWP bundle. Again, this finding indicates that not all HPWPs are alike and even might obstruct each other's effectiveness.

7.5 CONCLUSIONS STUDY 1

In Study 1, it was tested whether and which HPWP variables promote individual employee vitality. By using multi-level analyses we could test the impact of work unit-level HPWPs (as "objective" job resources) and individual-level job demands on the four vitality scales. The following conclusions could be drawn:

- First, the results showed that the "core" HPWP bundle distinguished in Chapter 6 related significantly to all four vitality dimensions. This indicates that work units which to a large extent (1) provide functional training, (2) stimulate their employee in their functional job or career growth and (3) efficiently deploy core employees in reacting to fluctuations in external demands do indeed promote employee vitality – although the relationship with the availability of energy was weak. This overall finding is in line with the positive relationships found between individual-level job resources and vigour *and* proactivity (Salanova & Schaufeli, 2008). Additionally, this study suggests that "objective" unit-level indicators of employee job resources also constitute effects on employee outcomes. This is not surprising given the research findings that individual experiences of work resources are largely shared among employees nested within the same work unit (Van Yperen & Snijders, 2000; Morrison, Payne & Wall, 2003).

- Second, we found that the "flanking" work practices (work life balance and attractive wages) did not relate to all of the four employee vitality dimensions. This indicates that there are differences among "objective" resources (HPWPs) in relation to employee vitality. Only for attractive wages there was a significant positive effect on the employee's availability of energy. This confirms the expectation that this flanking work practice relates more strongly to vigour than to the employee proactivity dimensions of employee vitality. To some extent it rejects the notion found both in HRM and health psychological literature, that the more employee "receive" from the organization in terms of above-market salaries or control over the combination of work-life obligations, the higher the employee's positive well-being and active performance outcomes. However, the correlations in Table 7-3 indicate more positive relationships between the two flanking work practices and the vitality scales. This could mean that in the multi-level analysis the HPWP

bundle possibly "surpresses" the positive influence of the flanking work practices on employee vitality. In other words, the HPWP bundle effect on the vitality scales dominates the vitality-effect of the flanking work practices in such way that it biases an adequate interpretation. It could be that the flanking work practices do have a initial positive effect on employee vitality but only to the extent that work units do not strongly emphasize a HPWP bundle. The additional negative interaction effect between core HPWP bundle and attractive wages with regard to the employee's willingness to invest energy also addresses this possibility. Here it seems that work units who invest in the components of the HPWP bundle but also in above-market wages downplay the positive effects of the HPWP bundle. An explanation for this finding is not easily available. Possibly, attractive wages make employees more passive in the attainment of work goals (*'I'm paid very well so why bother to invest more energy'*). There is some relationship with the evidence for the *motivation crowding effect* (e.g., Frey & Jegen, 1999) which suggests that an external intervention via monetary incentives may undermine employee intrinsic motivation to invest energy. However, in this case this would be dependent on the dominant influence of HPWP bundle intensity, because the correlation between attractive wages and the willingness to invest energy is positive (r = .28; p < .01). Employees seem to react differently to attractive wages when also a HPWP bundle is emphasized. All in all, the HPWP bundle effect on employee vitality is regarded to be more robust.

- Last, as expected, individual-level job demands have a differential effect on employee vitality. The results show a consistent pattern, in which (qualitative) emotional demands stimulate employee proactivity, while (quantitative) workload diminishes employee vigour. This finding confirms that just like job resources, also job demands are not alike. Emotional demands, that involves the extent to which employees need to respond to others (colleagues and/or customers) and their demands, triggers employee proactivity. Fay and Sonnentag (2002) already address this phenomenon, as they stated that employee proactivity could be an "active" employee reaction to reduce the adverse effects of high job demands. Otherwise, workload was negatively related to vigour as an active health indicator. This indicates that quantitative demands do not energize employees; rather they drain employee well-being.

In sum, Study 1 shows the complexity in grasping the work and organizational determinants of employee vitality. As displayed in Figure 7-2, the intense enactment of a core HPWP bundle has the greatest potential to elicit employee vitality. When taking into account all the measurement issues concerning HPWPs and the effect on employee vitality, this variable turns out to constitute a solid factor in explaining both active employee performance and well-being indicators. Consequently, Study 2 will test the final proposition that employee vitality intermediates between the core HPWP bundle and work unit performance.

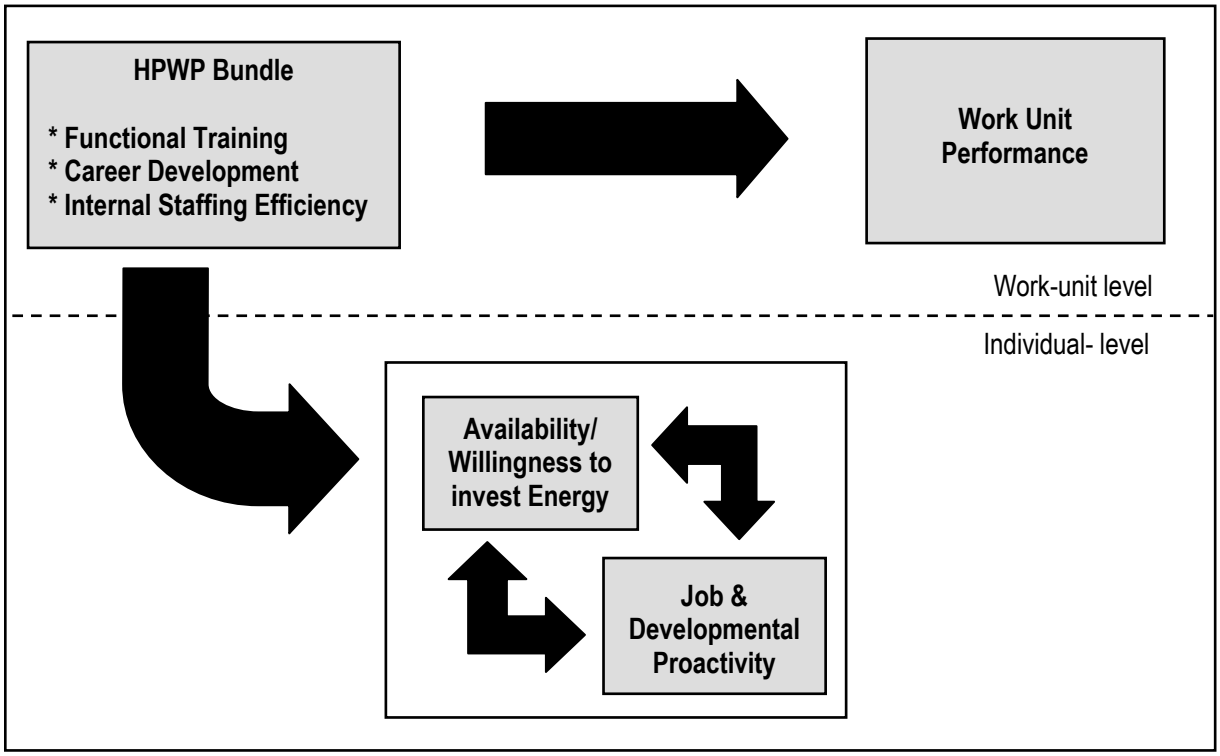


Figure 7-2: This study's contribution to the overall research framework

7.6 STUDY 2: HPWP BUNDLE, EMPLOYEE VITALITY AND UNIT PERFORMANCE

In Study 1 it was concluded that the HPWP bundle including the intensity of functional training, career development and internal staffing efficiency has the most consistent effect on the four vitality dimensions. This indicates that objective HPWPs indeed relate to "active" employee health and performance outcomes also when controlling for workload and emotional demands. Turning back to the central question in Chapter 2, Study 2 aims at the question to what extent there is a *common*

ground for enhancing organizational (unit) performance while sustaining (future) employee well-being. Following the HPWS-Performance literature, we expect that the enhancement of a proactive and vigourous workforce could be a crucial factor in promoting organizational performance in the contemporary work context. To date, several studies have begun to unlock the "black box" between HPWPs and organizational performance at several units of analysis. Included employee variables in those studies have been "passive" indicators like organizational commitment (Wright, Gardner, Moynihan & Allen, 2005; Benkhoff, 1997) or job strain (Ramsay et al., 2000). Recently, more active indicators of discretionary effort have been included, like human resource flexibility (Beltran-Martin, 2006). In line with these studies, we will examine the intermediating role of employee vitality in the link between HPWPs and organizational performance. Specifically, we focus on the HPWP bundle → employee vitality → performance linkage at the work unit level of analysis (as shown in Figure 7-3).

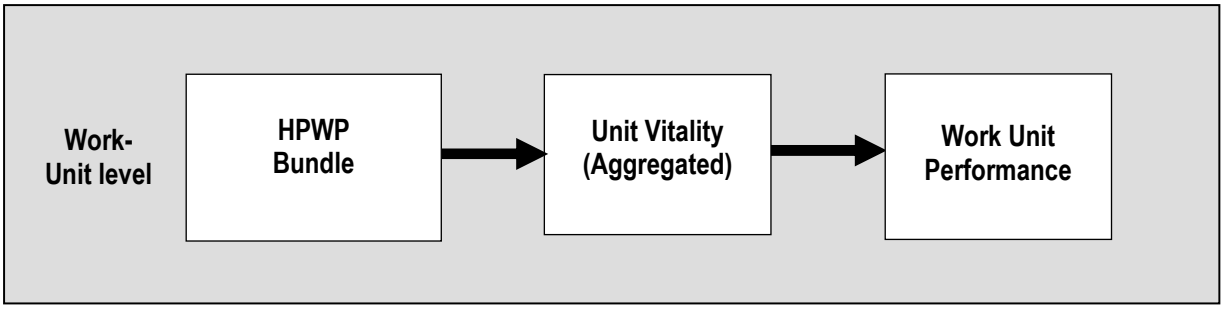


Figure 7-3: The mediating role of vitality in the HPWP-Performance linkage (Study 2)

In chapter 3 we described a vigourous and proactive workforce as a vital workforce which expends endurable and effective discretionary effort. This type of discretionary effort grasps those elements a workforce that contributes to short-term organizational performance while preserving their well-being needed for continuous organizational effectiveness. This forms the core assumption in integrative well-being – performance frameworks with regard to *organizational health* (Murphy & Cooper, 2000) and *sustainable work systems* (Docherty et al., 2002). In chapter 4, it was shown that the average work unit scores on the vitality dimensions of proactivity and the willingness to invest energy were significantly higher in highly effective work units. Furthermore, in Chapter 6, we validated the HPWP bundle by showing a

relationship with general unit effectiveness. Additionally, in this chapter we found significant relationships between the HPWP bundle and all four vitality dimensions at the individual level. Therefore, the last issue remaining is that of a possible mediating effect of employee vitality between the enactment of a HPWP bundle and work unit performance. This would signify a relationship in which work units differ in performance as a consequence of the activating role of a bundle of enacted HPWPs in stimulating employee vitality. Because we focus on the vitality of multiple employees in a work unit, we speak of aggregated vitality or unit vitality. Therefore, the final hypothesis reads:

> **Hypothesis 4:** Unit vitality mediates the relationship between the HPWP bundle and work unit performance.

7.6 METHODS STUDY 2

Sample

Similar to Study 1, the working sample in this study consisted of 53 work units providing management reports on enacted high performance work practices and work unit performance and employee self-reports employee vitality.

Measures

HPWP bundle The HPWP bundle score was assessed with the same measure as that described in Study 1. The HPWP bundle measure involved matched line manager and HR professional ratings and contained a total of 30 items. Scores could range from 3-15.

Unit vitality Since the data on the HPWP bundle and work unit performance were assessed at the work unit level, the employee vitality data were aggregated to the work unit level. Aggregating individual-level vitality data reflects a conceptualization of vitality as a work unit or workforce attribute. To justify the aggregation of the vitality scales we calculated the values of the intraclass correlation coefficients, ICC(1) and ICC(2). For *developmental proactivity* (ICC(1) = .07; ICC (2) = .51) and *willingness to invest energy* (ICC(1) = .21; ICC(2) = .80) the values exceeded minimal acceptable levels (Bliese, 2000). For *job proactivity* (ICC(1) = .05; ICC(2) = .41) and *availability of energy* (ICC(1) = .05; ICC(2) = .44) the ICC(2) scores were below

acceptable levels which indicates that the between work unit differences in these two vitality variables were less reliable.

Work unit performance Work unit performance was assessed by a self-constructed scale also used in chapter 3. The scale exists of 5 items that tap the degree to which the departments' (1) targets are met, (2) internal/external customers are satisfied, (3) the financial situation is good, (4) the department distinguishes itself positively from competitors and (5) the overall functioning is considered to be at an optimal level. For all of the 53 units, first line managers rated the general unit effectiveness on a 5 point scale (1 = to a very low extent; 5 = to a very high extent). Cronbach's alpha is .66.

Control Variables As found in Study 1 individual level job demands have a relationship with the employee vitality dimensions. With regard to organizational performance, job demands have been argued to also relate positively to performance to the extent that higher work intensification through the pace of work or the demands put on employees by customers or clients boost productivity levels (e.g. Green, 2001). To control for the possibility that work units characterized by high job demands also are those units that pressure employees towards higher output levels, two job demands scales were entered at the work unit level. Referring to the same job demands measures as used in Study 1, ICC values for workload (ICC(1) = .17; ICC(2) = .77) and emotional demands (ICC(1) = .31; ICC(2) = .87) show a moderate, but reliable amount of the variance in job demands that can be attributed to the work unit.

Analytical Procedure

To test the mediating influence of unit vitality variables in the HPWP-Performance linkage, we follow Baron and Kenny's (1986) recommended procedures of testing mediation. Here it is expected that the positive effect of the HPWP bundle on unit performance will drop or disappear when entering the aggregated vitality variables.[9]

[9] Sun et al. (2007) followed a similar procedure. However, in their study line mangers rated the OCBs of their subordinates which were aggregated. In our study we used aggregated employee self-reports.

Table 7-5: Means, Standard Deviations and Correlations (Work unit level)

		M	SD	1	2	3	4	5	6	7	8	9	10
1	Unit Size	33.9	22.3										
2	Average Education	4.00	.83	-.36**									
3	Proportion / Males	1.51	.31	.14	-.11								
4	Workload	2.07	.28	-.20	.08	.28*							
5	Emotional demands	1.92	.28	-.10	.54**	-.16	-.15						
6	Job Proactivity	3.97	.19	-.01	.48**	.08	-.24	.39**					
7	Developmental Proactivity	3.88	.18	-.14	.48**	-.07	.02	.54**	.50**				
8	Availability of Energy	2.89	.18	-.04	.14	-.22	-.54**	.18	.41**	.26			
9	Willingness to Invest Energy	3.83	.44	-.12	.41**	-.50**	-.42**	.42**	.60**	.44**	.67**		
10	HPWP Bundle	9.29	1.46	-.31*	.41**	-.29*	-.19	.38*	.52**	.35*	.48**	.72**	
11	Work Unit Performance	3.76	.53	-.06	.10	-.25	.11	.18	.19	.32*	.12	.33*	.32*

Note: Work unit *n* = 53; ** p < .01; * p < .05

7.7 RESULTS STUDY 2

Table 7-5 shows the descriptive statistics and correlation table for variables in Study 2. As shown in the table, the HPWP bundle correlates significantly to the four aggregated vitality dimensions *and* unit performance. Furthermore, aggregated developmental proactivity (r = .32; p <.05) and willingness to invest energy (r = .33; p <.05) also correlate with work unit performance. Following Baron and Kenny (1986) these two vitality dimensions are able to mediate a HPWP-Performance linkage, because they relate to both the independent and dependent variable. Furthermore, the table shows that unit size, average unit education and the proportion of males in the work unit do not significantly relate to organizational performance. To minimize the number of variables these are excluded from further analysis.

Table 7-6 shows the regression analyses for the influence of the HPWP bundle on unit performance and the mediating role of the unit vitality. Based on the significant correlation between the HPWP bundle and unit performance (r = .33; p < .05 in Table 7-5), the standardized regression coefficient for the HPWP bundle (when controlled for job demands) is also significant (β = .35; p < .05 in Table 7-5). When entered in step 2, as could be expected based on the correlations, the aggregated measures for job proactivity and availability of energy were not significant, although the significance of the HPWP bundle – unit performance relationship turned marginal (p < .10) when entering job proactivity. This, however, does not indicate mediation.

For the mediating role of *developmental proactivity* and the *willingness to invest energy*, the results are more convincing. Here, Table 7-6 shows that when entering developmental proactivity in step 2, its regression coefficient is nearly significant (β = .26; p < .10), while the effect of the HPWP bundle on work unit performance turns non-significant (β = 30; p = n.s.). A similar effect is observable when entering *willingness to invest energy*. Here, the regression coefficient is strong and nearly significant (β = .41; p < .10), while the HPWP bundle's coefficient decreases strongly and turns non-significant (β = .12; p = n.s.). Furthermore, this analysis shows that when entering the willingness to invest energy, also the workload variable turns significant (β = .32; p < .05). Overall, in line with hypothesis 4, the analyses suggest support for the mediating influence of *willingness to invest energy* and *developmental proactivity* between the enactment of a HPWP bundle and work unit performance.

Table 7-6: Mediation analyses for HPWPs and Work Unit Performance through Employee Vitality

	Work Unit Performance (Mediator: Job Proactivity)		**Work Unit Performance** (Mediator: *Developmental Proactivity*)		**Work Unit Performance** (Mediator: *Availability of Energy)*		**Work Unit Performance** (Mediator: *Willingness to Invest Energy*)	
	Step 1	**Step 2**	**Step 1**	**Step 2**	**Step 1**	**Step 2**	**Step 1**	**Step 2**
Work Unit Demands								
Workload (agg)	.17	.19	.17	.18	.17	.21	.17	**.32***
Emotional demands (agg)	.03	.01	.03	-.10	.03	.02	.03	-.08
Work Unit Resources								
HPWP Bundle	**.35***	**.32#**	**.35***	.30	**.35***	.32	**.35***	.12
Work Unit Vitality								
Job Proactivity	-	.07	-	-	-	-	-	-
Developmental Proactivity	-	-	-	**.26#**	-	-	-	-
Availability of Energy	-	-	-	-	-	-.08	-	-
Willingness to Invest Energy	-	-	-	-	-	-	-	**.41#**
R^2 Total	*.14*	*.14*	*.14*	*.18*	*.14*	*.14*	*.14*	*.19*

Note: Employee *n* = 764; Work unit *n* = 53; ** p < .01; * p < .05; # p < .10

7.8 CONCLUSIONS STUDY 2

In this last chapter, the potential of *management by vitality* was explored by addressing (1) the effect of "objective" job resources (HPWP bundle) on the four vitality indicators and (2) the mediating role of employee vitality in the HPWP-performance linkage at a work unit level. The accumulation of knowledge provided by each chapter led to rich multi-level and multi-actor data which enabled us to test whether the adoption of HPWPs relates to higher work unit performance through employee vitality. Combining the results of study 1 and 2, it can be concluded that a HPWP bundle consisting of a high intensity of functional training, career development and internal staffing efficiency indeed positively influences all four dimensions of employee vitality, but that only the dimensions of developmental proactivity and the willingness to invest energy make a difference with regard to better work unit effectiveness (although with marginal significance). To some extent this finding signifies the importance of stimulating an active learning orientation of employees towards their present tasks as well as future skills and knowledge in order to contribute to overall work unit functioning. The central role of active employee learning and development in the contribution to organizational performance has also been recognized by, for instance, Karasek and Theorell (1990), Parker and Wall (1997) and Jacobs and Washington (2003). When employees are stimulated to develop and learn new behavioural patterns because of the training they receive, in combination with the emphasis on development and functional flexible staffing strategy, they are likely to proactively maintain a fit between changing work requirements and their skills, knowledge and abilities. But does that mean that the other vitality dimensions of vigour and job proactivity do not play a role in stimulating organizational effectiveness? Other than expected, these scales did not moderate the HPWP-Performance linkages. Reasons for this can be sought in the following issues:

- First, as we expect employee vitality to constitute a sustainable type of effort expenditure, its most beneficial effects on work unit performance might appear when conducting longitudinal research. In this cross-sectional study the importance of employee vitality for long-term organizational success might not become visible.

- Second, it might be the case that the other vitality dimensions are crucial elements of active and healthy workforce without constituting those discretionary attributes that directly impact on organizational performance. As such, there is also the possibility that employee vigour moderates the relationship between proactivity and organizational performance. This was not the focus of this study. However, it is likely that employees with greater availability of energy might be more willing and persistent in directing their effort towards self-development ("you need energy to use energy").

- A third reason can be found in the technique of aggregating the nested employee self-reports to a unit-level. Although aggregation is convenient for testing a mediation effect of vitality between unit-level variables, the ICC values were not convincingly high. This indicates that vitality can not be regarded as a unit characteristic, which increases the risk of *atomistic fallacy* (Snijders & Bosker, 1999). Here, it is wrongly assumed that aggregating individual level phenomena would reflect similar phenomena at (in this case) the work unit level. In other words, an individual employee can show high levels of vitality but can a work unit show vitality too? Furthermore, because our aggregated vitality measures had fairly low reliabilities (ICC2) there is a chance that there is an underestimation of the standardized beta weights. New multilevel modelling techniques which enable researchers to predict work unit level outcomes from variables measured at the individual level (see Croon & Van Veldhoven, 2007) could solve these problems in the future.

- Finally, due to our relatively small sample of 53 work units, examined relationships may not be found to be as strong as they are. This may explain why the intermediating effects were not found.

7.9 WHAT IS CONFIRMED OF THE INITIAL RESEARCH FRAMEWORK?

As shown in Figure 7-4, this last study finishes the initial research framework which was formulated in Chapter 2. The strongest and most convincing element that keeps the framework empirically intact is the importance of employees who feel challenged and activated to develop themselves and look ahead. What these findings mean in

the context of the search for a common ground for the management of well-being and performance will be addressed in the final chapter.

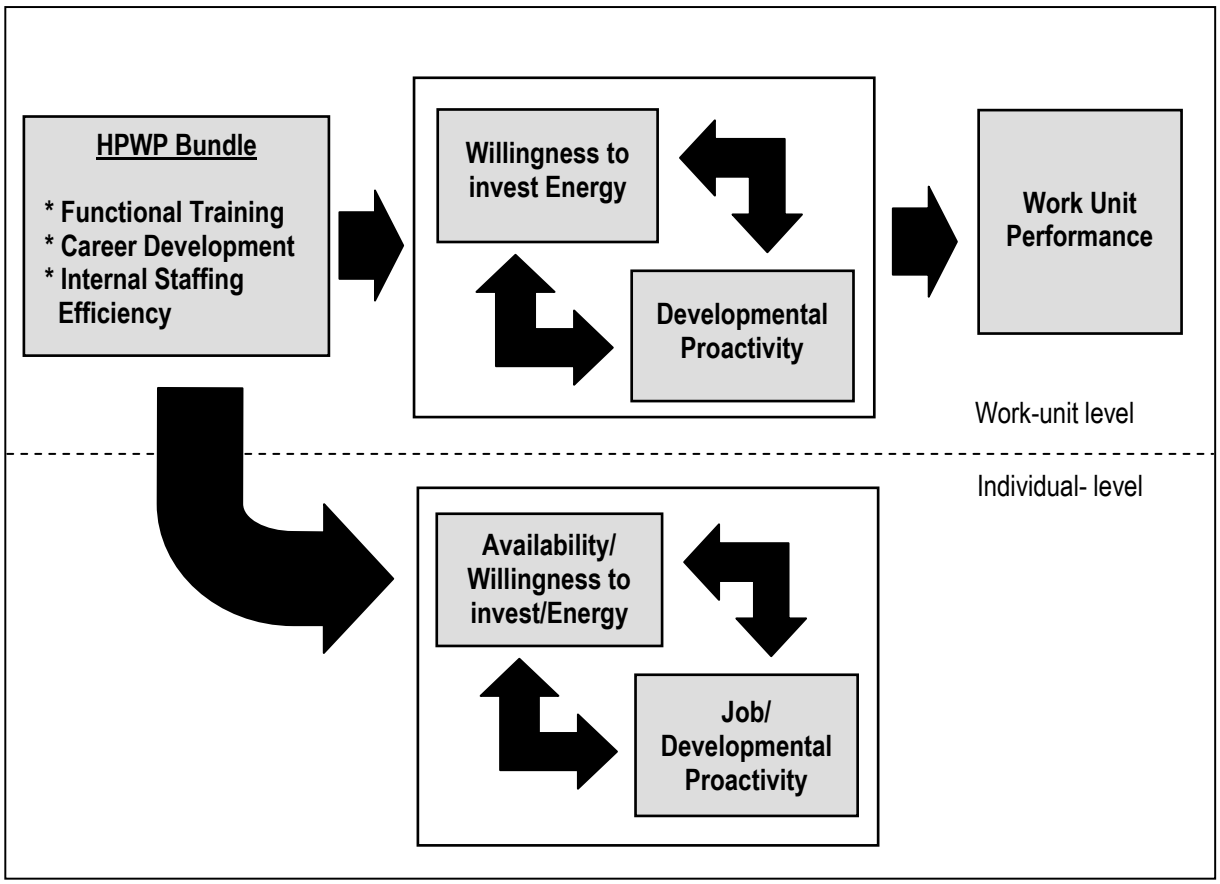


Figure 7-4: This Study's Contribution to the overall Research Framework

Chapter 8

Final conclusions and discussion: Management by Vitality?

8.1 GOAL OF THIS DISSERTATION

Since the human relations movement in the 1930s and 1960s put the importance of employee well-being on the business agenda, there has been a great deal of debate on whether greater employee well-being would also serve the performance goals of the organization. For some years now, well established organizational functions like personnel officers, HR managers and occupational health professionals, all deal directly with the "good" and "bad" impact of work and organizational factors on the employee. Under the common sense assumption that a satisfied, unstrained and committed employee is a productive employee, practitioners and researchers alike have legitimized their efforts to develop and install measures that could prevent organizations from making high organizational costs associated with employees who leave the organization or get ill. Notwithstanding the importance of these employee outcomes in itself, contemporary organizations demand more from their employees than just the absence of *un*well-being. As the contemporary market environment gets increasingly complex and uncertain, employers recognize the added value of

employees who go beyond what is required from them, who take initiative, who think ahead and who know what is needed to deal with the fierce competition which is no exception even in smaller organizations and in the semi-public sector (Boxall & Purcell, 2003). This so-called *discretionary* employee effort is recognized as a critical organizational resource to the extent that interactions with customers, colleagues and IT technology dictate the quality and efficiency of work processes. As a consequence, there has been an increasing interest in the notion of high performance work systems, which deals with the management and organization of this discretionary employee effort as an organizational resource that is valuable, hard to imitate and not easy to substitute by automation or by outsourcing. High Performance Work Systems have put the discretionary contribution of employees to organizational performance on the management agenda. However, it also puts employee well-being back into the equation as an important feature of a "sustainable" workforce (Fay & Kamps, 2006) which is able to healthily meet the high performance demands at hand. As shown in Figure 8-1, it leads to the proposition of the concept of employee vitality that could intermediate the HPWS-performance linkage.

Figure 8-1: Employee Vitality in the HPWS-Performance Link

Therefore, in addition to the organizational performance effects of High Performance Work Systems, this dissertation examined the simultaneous effects of High Performance Work Practices on employee well-being. Different streams of literature and research hold "competing hypotheses" (Wall & Wood, 2005) on whether High Performance Work Systems either positively, negatively or do not influence employee well-being. Therefore, the main goal was to explore to what extent a High Performance Work System fosters a "common ground" for the management and organization of human resources towards (high) performance, while simultaneously sustaining employee well-being – i.e. *management by vitality*. To reach a final

conclusion on this issue, this chapter will present the main chapter findings and a discussion on important themes this dissertation has distinguished. Further, this dissertation's overall theoretical and empirical strengths and limitations are elaborated on. Finally, possible research directions and implications for practice are discussed.

8.2 MAIN RESEARCH FINDINGS

In this dissertation we addressed four overarching research questions. Below the main findings related to the theoretical (chapter 2), conceptual (chapter 3, 4, 5 and 6) and the empirical research questions (chapter 7) will be described.

> ***Research Question 1:*** *What does previous theory and research conclude on how work organizational and management factors can form a "common ground" in their effect on employee well-being and organizational performance; what are the main gaps and similarities in these theoretical approaches; and how can this be used in further research?*

Chapter 2 provided an extensive literature review and categorization of the theoretical models that describe how work and organizational factors impact employee well-being *and* performance. Towards this dissertation's goal to unravel the features of a common ground for the management of well-being an performance this was an essential part. In line with Peccei (2004), the extensive overview showed that, over the years, a broad range of theoretical models underpin either an *optimistic*, *pessimistic* or *sceptical* approach to how well-being and performance processes converge. This is problematic, as it shows that across disciplines there is no consensus on whether and how employee well-being *and* performance can simultaneously be improved. Rather than just choosing one of the theoretical approaches, the application of the integrative theoretical mindset can be considered more valuable to make theoretical and empirical advancements. In line with recent integrative approaches like organizational health (e.g., Hart et al. 2000) and sustainable work systems (e.g. Docherty et al., 2002) it was explicitly acknowledged that employee well-being and performance are dynamically entwined outcomes of work which, over time, have no explicit causal order. The conclusion is that an integrative approach leaves room for optimistic, pessimistic *and* sceptical views on

the management of well-being and performance to the extent that (1) for either well-being and performance the work and organizational determinants can differ (sceptical), (2) in the short run performance can also come at the expense of employee well-being and vice versa (pessimistic) and (3) in the longer run endurable organizational performance cannot go without high employee well-being and vice versa (optimistic). Furthermore, it is concluded that possible reasons for why previous research on the management of well-being and performance might contain such conflicting outcomes, are due to (1) misspecifications in the well-being and performance concepts used, (2) in the extent to which these concepts fit a contemporary work context and (3) in the way a system of work and organizational factors might impact both well-being and performance outcomes. Consequently, to overcome these problems, an integrative research framework was built that expressed the need for adequate conceptualizations of employee well-being, performance and manageable work and organizational factors. This led to the following research questions, reading:

> ***Research Question 2:*** *How does a new concept of employee vitality contribute to the research on employee well-being and performance and what are the specifics of a validated employee vitality construct?*

With regard to the second research question, chapter 3 and 4 addressed the conceptualization, measurement and validation of employee vitality as an active employee well-being and performance concept (Frese & Fay, 2001). Building on the notion of the "sustainable" workforce (Fay & Kamps, 2006) that can highly perform and healthily cope with the demands of the contemporary work context, we provided a rationale for the employee well-being and performance concepts that signify an employee that "has got what it takes" to contribute to endurable organizational success. It was proposed that an active and sustainable workforce is likely to be characterized by *vital* employees that show high levels of vigour *and* proactivity. This was based on the proposition that (1) employee vigour and proactivity enhance each other over time and (2) that vital employees are less constrained by time, energy and the risk of outdated competence than when organizations would focus on "passive" employees as satisfied, unstrained and committed organizational citizens. As such, employee vitality is concluded to be an indicator of employees who can expend maximum levels of discretionary effort (high

performance), while sustaining high levels of employee well-being to maintain a maximum level of discretionary effort expenditure (endurable performance). In the next step, based on employee survey data from 736 blue, white and pink collar employees out of 51 work units nested in different 13 organizations, four scales that tap different aspects of employee vitality were examined and validated. Analyses provided some evidence for the notion that being a proactive and vigorous employee is not the same as being a satisfied, committed employee free from job strain. This finding corresponds with research on other more "active" employee attributes like flexible work orientations (Parker, 2000) and work engagement (Hallberg & Schaufeli, 2006; González-Romá, Schaufeli, Bakker and Lloret, 2006). Furthermore, the mean vitality scale scores of employees working in the higher performing one-third of the work units were found to be higher than in the lower performing two-third of the examined work units. Except for the *availability of energy*-scale, employee *job proactivity*, *developmental proactivity* and the *willingness to invest energy* were significantly higher for employees working in the top 35% performing work units. Based on these findings, it is concluded that the concept of employee vitality can serve as an useful employee criterion for the management of well-being *and* performance. The management domain was subject to the third research question:

> ***Research Question 3:*** *What is a High Performance Work System Framework and which High Performance Work Practices are empirically associated with the underlying assumptions of the HPWS framework?*

A popular framework with regard to manageable work practices that relate to organizational performance is the contemporary notion of High Performance Work Systems (Appelbaum et al., 2000). But because the research literature displays great diversity in the choice and measurement of work practices that define a High Performance Work System, it was of importance to clarify the measurement specifics of the work practices themselves and the research design issues that go along with High Performance Work Practices (HPWP) measurement. In the next step, the application of these issues to the HPWPs for our study, led to the development of HPWP measures tapping the intensity with which front-line management at a work unit level execute HRM activities in multiple HR domains. Based on an extensive measurement procedure including 53 matched line management and HR professional ratings obtained through structured face-to-face interviews, we were

able to construe 6 reliable HPWP intensity scales. Unique was the ability to further validate of the HPWP measures by linking them to employee-rated work experiences across work units. This analysis showed that three HPWPs (*functional training, career development* and *internal staffing efficiency*) have similar positive effects on the greatest range of expected employee work experiences. Conversely, work practices signifying *work-life balance arrangements* and *attractive above–market wages* differ in the employee work experiences they relate to. As such, the results reveal a "core" HPWP bundle in which three work practices are likely to strengthen each other into employee work experiences associated to the HPWS framework, while work life balance arrangements and attractive wages might act as "flanking" work practices. Interestingly, our measure of performance appraisal constituted negative relationships with employee experiences of their developmental possibilities, job variety and job clarity. This finding questions the often assumed core contribution of performance appraisal to the high performance framework (Wood, 1999b). An additional analysis further validated the "core" HPWP bundle measure because it was the only measure that related positively to line management ratings of general work unit performance. However, as a systems perspective suggests (see Delery, 1998), work practices can interact in such way that, in combination, "flanking" work practices could foster an additional beneficial effect of the core HPWP bundle. Whether the "core" HPWP bundle impacts work unit performance, while being able to sustain employee well-being, led to the last research question:

> ***Research Question 4:*** *To what extent does the adoption of High Performance Work Practices stimulate employee vitality; and to what extent does employee vitality intermediate HPWPs and work unit performance?*

To answer this question, in chapter 7, we conducted multi-level analyses and included all the matched multi-actor data available. To reach a conclusion on whether and how individual-level concept of employee vitality (employee data) intermediates work unit–level HPWPs and performance (management data) two studies were conducted. The first multi-level study revealed that the core HPWP bundle related positively to all four vitality scales – also when we controlled for high quantitative and emotional job demands. It indicates that a work unit that simultaneously (1) invests intensively in functional training, (2) stimulates employee development and (3) makes use of the functional flexibility of core employees

enhances the job and developmental proactivity among employees as well as their energy levels and the willingness to invest that energy. The two "flanking" work practices did, however, not add anything to these relationships (except for the positive effect of above-market wages on the availability of energy). Overall, this suggests that the core and flanking work practices are of a different nature. Whether the enhancement of employee vitality forms a reason for the HPWP bundle to relate positively to work unit performance was tested solely at the work-unit level in the second part of the chapter. Here, our study showed that the aggregated measures of employee developmental proactivity and willingness to invest energy could partially explain the positive effect of the HPWP bundle on work unit performance. In other words, these two employee vitality dimensions turned out to be "vital" workforce attributes through which a core HPWP bundle relates to work unit effectiveness. This final analysis sharpened the empirical contours of how management by vitality triggers high performance, while sustaining employee well-being.

8.3 DISCUSSION: MANAGEMENT BY VITALITY?

So what could management by vitality entail? Which issues were found to be characteristic to this notion? And how does this relate to previous and contemporary literature and research on the relationships between management, well-being and performance? Below, five key issues are discussed that distinguish the choices and findings in this dissertation from earlier research.

Mono-theoretical versus integrative theoretical mindsets

If we look back on the literature discussing the work and organizational determinants of employee well-being *and* organizational performance that has been written since the first decades of the twentieth century, what should we conclude? Probably, that there is some theoretical progress made through very small steps at a time and mostly in one and the same direction. Of course, over the years, notable progress has been made with regard to the broad range of work and organizational variables studied in relation to individual, group or organizational outcomes at which research targets at (for an extensive overview see Parker, Wall and Cordery, 2001). However, it is to a great extent the core *optimistic* perspective underlying the theoretical models and research hypotheses that has remained dominant. This perspective refers to the win-win assumption which states that those work and

organizational factors that lead to increased employee well-being also increase (organizational) performance. It links to the happy-productive worker thesis (e.g., Wright & Staw, 1999), which underpins popular models like the job characteristic model (Hackman & Oldham, 1980) and the high commitment/involvement models found in HRM literature (e.g., Walton, 1985; Lawler, 1986). Both of these models have their early roots in the humanization of labour movement, which originally was a reaction to the demeaning, simplistic and mind-numbing jobs and management practices which arose in large-scale industrial work settings. Examples of it being a reaction can still be found in the distinctions made between Tayloristic versus enriched jobs (Fay & Kamps, 2006) and high control HRM versus high commitment HRM (e.g., Arthur, 1994). In this respect, optimistic approaches incorporated new and better ways of designing and managing employee jobs which would not come at the expense of business goal attainment. By linking the investment in the motivational potential of work to the promise of increased organizational performance, it put the value of employee well-being on the business agenda – although with more emphasis on employee well-being than on performance. In essence, the optimistic approach has not lost its academic popularity over the years, despite the *pessimistic* research findings that a motivational job design could also evoke tradeoffs between employee well-being and performance (e.g. Campion et al., 2005) or the *sceptical* research findings that suggest that well-being and performance do not share the same determinants per se (Kelly, 1992; Peccei, 2004).

Furthermore, after years of empirical research, the optimistic studies have not reached conclusive evidence on whether both employee well-being and organizational performance can be simultaneously promoted by the same set of work and organizational factors. In pointing this out, Morgeson and Campion (2002) even speak of the somewhat "parochial" nature of motivational job design research. In a similar vein, Wall and Wood (2005) refer to "the romance of HRM" as conclusions on the impact of high commitment HRM on organizational performance are still premature. This issues the possibility that a normative, mono-theoretical optimistic approach to the management of well-being and performance has been very successful in gaining more managerial attention for the psychological and social needs of employees, but to date, fails to provide an evidence-based rationale for simultaneous increases in organizational performance. However, this does not mean that research following an optimistic stance is naïve and should be discontinued. Recently, Humphrey, Nahrgang and Morgeson (2007) and Parker et al. (2001) called

for the expansion and integration of the optimistic motivational work design factors with social and work contextual factors. For instance, the meta-analysis by Humphrey et al. (2007) reveal the differential impact of either motivational, social and work contextual work characteristics on work and employee outcomes. Additionally, Parker et al. (2001) also emphasize the interaction between work characteristics at the individual, work unit and organizational level in explaining well-being and performance outcomes. The theoretical stance of this dissertation supports a broader but integrative approach by (1) specifically recognizing the either optimistic, pessimistic or sceptical impact of certain work practices on well-being and performance outcomes and (2) by taking into account the either beneficial or detrimental outcomes of interactions between work practices at the unit level of analysis. As argued, work design and HRM researchers alike should consider the possibility that not all seemingly beneficial work practices contribute to both well-being *and* organizational performance – although some could. In our study, six high performance work practices (HPWPs) were included which, in empirical research, are often taken together in relating them to all sorts of employee and organizational outcomes (for an overview see Combs et al., 2006).

As a system measure, HPWPs are expected to have a optimistic synergistic effect on these outcomes. But as our results suggest, different HPWPs constitute different outcomes. For instance, the adoption of work life balance arrangements and above-market wages do relate to the employee experience of the possibilities to exert influence on their work-life obligations and a fair effort-reward bargain which signifies the organizational concern for employee well-being. However, our research showed that these two work practices do not contribute to better work unit performance, which underpins a *sceptical* approach. Furthermore, performance appraisal, often regarded as a key high performance work practice (Wood, 1999b), was largely deterrent to employee experiences of job clarity, job variety and developmental opportunities. Additionally, performance appraisal did not contribute to work unit performance (a result also found in Combs et al.'s (2006) meta-analysis). This partly underpins a *pessimistic* influence of performance appraisal, although the domain of performance appraisal was found to be dysfunctional to *both* well-being *and* performance. If these work practices would have been combined into one HPWP system measure, our *optimistic* findings for the HPWP bundle (consisting of internal staffing efficiency, functional training and career development) would probably be distorted or tempered. As a consequence,

disentangling work practices based on their actual effect on employee well-being and performance underpins an integrative way of thinking rather than following normative theoretical models. This also calls for alternative explanations for *why* the different work practices have differential effects on well-being *and* performance. With regard to these explanatory mechanisms, Parker et al. (2001) state: "That is an area where development is urgently needed […]" (p. 428). In further discussing the key features of management by vitality, a key question is to what extent employee vitality could serve as such a mechanism?

> ***Proposition 1:*** *Other than mono-theoretical work and management models, an integrative theoretical mindset opens up to disentangling work and organizational factors that either fit an optimistic, pessimistic or sceptical approach to the management of well-being and performance.*

Satisfied, committed, unstrained versus vital employees

An integrative theoretical mindset on the management of well-being and performance opens up the inclusion of other theoretical mechanism which could more adequately explain how well-being and performance could simultaneously be enhanced. For instance, from the resource based view (RBV; Barney, 1991) and High Performance Work Systems literature (e.g. Appelbaum et al. 2000) found in the field of strategic (HR) management, the emphasis is placed on effective and discretionary employee effort. In this line of research, discretionary effort is related to a focus on the organization's distinctive human resource pool, characterized by strategically competitive employee skills, attitudes and behaviours which add value, are hard to imitate and non-substitutable (Wright et al., 2001). This draws the attention to the satisfaction of organizational needs instead of employee needs when it comes to the design of effective work and organizational practices. Looking at the recent RBV literature, the value of "dynamic capabilities" (Volberda, 1996; Teece et al., 1997; Zahra, Sapienza & Davidson, 2006) of organizations and employees is emphasized as organizations need to remain agile to quickly respond to changing market and institutional developments (Dyer & Reeves, 1999; Boxall & Purcell, 2003). The human resource advantage (Boxall, 1996) is therefore increasingly characterized by the interest in human resource flexibility (Beltran et al., 2008) and employee creativity/proactivity (e.g., Frese & Fay, 2001; Baer & Frese, 2001), which would

enable employees to contribute to the organization's sustained competitive advantage. This development puts the research interest in traditional employee well-being and performance attributes, like organizational commitment, job satisfaction and job strain into a different perspective (see Parker, 2000). As the modern organizational and work context gets less stable, more uncertain and more demanding, a range of authors have argued that concepts of employee well-being and performance should incorporate the theoretical features of the changing work context (Ilgen & Pulakos, 1999; Frese and Fay, 2001; Fay & Kamps, 2006; Griffin, Neal & Parker, 2007).

Based on this development, this dissertation provided a rationale for the value of employee vitality as an active well-being and performance concept which depicts a vigourous, proactive employee. More than satisfied, committed and *un*strained employees, vital employees are expected to be able to actively overcome the time, energy and competence constraints that the modern employee faces in doing a good (high performance) job. As a theoretical concept, employee vitality fits within a range of recently emerged well-being and performance concepts within the stream of "positive" psychology (Seligman & Csikszentmihalyi, 2000), like "work engagement" (Schaufeli & Bakker, 2004) or "thriving at work" (Spreitzer et al., 2005). What these concepts have in common is that they resemble a composite construct containing coexisting employee traits, states and/or behaviours (Macey & Schneider, 2008). For example, work engagement as used by Schaufeli et al. (2004) consists of employee vigour *and* dedication, while thriving consists of vigour *and* employee learning behaviours. Our concept of employee vitality as a dynamic reflection of well-being and effort expenditure consists of vigour *and* employee proactivity, and differentiates from the other concepts as it was designed as a employee performance mechanism rather than a positive employee well-being outcome *per se*. For example, work engagement was explicitly designed as a "positive" counterpart of the "negative" concept of employee burnout (Maslach & Leiter, 1997), whereas employee vitality was developed as an "active" counterpart of "passive" employee performance and well-being concepts. As such, we measured four different employee vitality dimensions, of which two tap the degree of employee proactivity and two the degree of employee vigour.

However, although we provided a theoretical rationale for how employee proactivity and vigour might coexist and enhance each other over time, based on our

cross-sectional data, we could only conclude that the four vitality dimensions coexist and show a correlational pattern that distinguishes it from passive well-being and performance concepts like job satisfaction, affective organizational commitment and job strain. Stating that employee vitality would be a stable syndrome of consistently co-occuring active employee well-being and performance is therefore too premature. Otherwise, recent research by Salanova et al. (2008) in a Dutch and Spanish employee sample report medium to large correlations between vigour (r = .38/.58) and proactive behaviour; and between dedication (r = .47/.40) and proactive behaviour. Additionally, Sonnentag's (2003) diary study in a German sample even reported similar sized correlations between day-level engagement (including vigour and dedication) and personal initiative (r = .48) and pursuit of learning (r = .61). These findings confirm the overlap between the vigour and proactivity dimensions underlying the employee vitality concept central to this dissertation study. In other words, employee vigour and proactivity might signify an overarching theoretical concept of employee vitality in which employee consistently feel higher/lower levels of vigour together with showing higher/lower levels of proactivity.

However, recently several authors also refer to another mechanism worth examining. Based on the inconsistent findings on the causal relationship between well-being and performance, Sonnentag (2002) discussed the possibility that well-being can be both an instigator as well as a result of performance – a so called *spiral effect*. With regard to our notion of employee vitality this means that other than vitality being a stable state or behavioural syndrome of co-occuring facets, the proactivity and vigour dimensions of employee vitality could take the form of a "self-regulatory spiral". This would indicate a spiral effect with employee vigour enhancing employee proactivity which in turn enhances future employee vigour. Like a *perpetuum mobile*, employee vigour/energy would become both an antecedent and outcome of proactive behaviour. The self-regulatory nature is expressed through the focus on proactivity as an employee performance aspect. Through this behaviour, on the one hand, employees themselves seek new energy resources in their work or take away energy spillers. On the other hand, employee learning behaviours can enhance ones self-efficacy and abilities to keep on dealing with new work demands in a way it does not only prevents the draining ones vigour, but also it can fuel new feelings of vigour. Recent cross-lagged research by Salanova, Bakker and Llorens (2006) examined such an "upward" spiral between the concept of flow at work and self-efficacy and indeed found that employee flow (as an indicator of positive health)

and employee self-efficacy have a reciprocal relationship over time. It would be interesting to examine whether a vigour-proactivity spiral would exist. Such spiral would more explicitly emphasize the importance of the proactive behavioural component through which an employee *exercises* control over one's thinking, affect, behaviour and attention - a critical element of self-regulation (Kanfer & Kanfer in Sonnentag, 2002). As such, the components and rationale of employee vitality integrates several performance perspectives which emphasize (1) the changing nature of performance in a contemporary work context, (2) the constraints that employees need to overcome to deliver high performance, (3) the importance of high well-being *and* proactivity to do so, (4) the bidirectional relationship between "active" well-being and "active" employee performance and (5) the possibility of a spiral effect in which employee vigour and proactivity enhance each other over time as an indicator of *sustainable* employee performance (see Fay & Kamps, 2006).

> ***Proposition 2:*** *Employee vitality signifies a context-driven, active and sustainable performance concept which combines the organizational need for agility and high performance and the employee ability to perform while sustaining the well-being to perform in the future.*

Flanking Work Practices versus High Performance Work Practices

To integrate theories on the management of well-being *and* performance and to explore the value of employee vitality for the success of an organizational unit, the high performance work systems framework was used. As described in chapter 5, the HWPS literature distinguishes itself through the emphasis on (1) *high* performance outcomes, (2) intermediary *performance* mechanisms and a (3) system of work and organizational *interventions.* This framework has led to a multitude of studies finding significant relationships between the adoption of a high performance system (including a multitude of work practices) and organizational performance outcomes (e.g., Huselid, 1995; Guest et al., 2003; Datta et al., 2005; Combs et al., 2006). However, without adequately testing the intermediating employee mechanisms between the adoption of HPWPs and organizational performance, the evidence for a HPWP-performance link remains inconclusive (Paauwe & Boselie, 2006; Hesketh & Fleetwood, 2006; Campbell, 1999). Before such intermediary mechanism can be tested, first, a direct relationship between work practices and organizational

performance should be manifest to distinguish the high performance work practices from other work practices. In this study, the HPWP bundle consisting of a high intensity of functional training, career development and internal staffing efficiency was found to directly relate to work unit performance, while providing work life balance arrangements, attractive wages and performance appraisal did not. Does that still make the latter three work practices high performance work practices? The extent to which their adoption would enhance the performance effects of the HPWP bundle, could still make them valuable "flanking" work practices in the high performance framework. However, analyses in chapter 6 and 7 showed that none of the three work practices contributed to stronger HPWP bundle effects. Instead, we found that attractive wages even could downplay the positive employee vitality outcomes of the core HPWP bundle. Also, work life balance arrangements were found to have a nearly significantly *negative* relationship with work unit performance. Furthermore, performance appraisal even had a negative impact on employee work experiences (e.g., developmental opportunities, job variety) which are considered key features of the HPWS framework. Therefore, it seems that these practices serve a different purpose and do not necessarily fit the HPWS framework. This provides proof for the far more dramatic differences between work practices than HPWS research acknowledges. In the case of performance appraisal our results opt the question if this is favourable work practice at all.

The latter conclusion is an intriguing one, as performance appraisal is considered a key distinctive practice of the high performance framework in comparison to high commitment HRM models (Wood, 1999). And yet, empirical research repeatedly does not confirm the great value of this work practice for organizational performance (see Combs et al., 2006; Beltran-Martin et al., 2008; Vandenberg et al., 1999). Reasons for this are not immediately clear, but several authors (e.g., Purcell, 1999) have argued that performance appraisal is especially vulnerable to implementation fallacies, which are hard to measure directly.

Second, Stiles et al. (1997) already argued that performance appraisal could result in a too narrow and short-term focus on incentivized goal attainment, which might compromise the further experience of job variety and the broader personal developmental goals an employee seeks to pursue. Third, it is also not clear whether performance appraisal is merely a management control practice that does not have any intention to be in the employee's interest whatsoever (in Boselie et al., 2005).

However, as work life balance, attractive wages and performance appraisals are also not found to relate to higher work unit performance directly, they still can contribute to better organizational functioning in their prevention of production losses via reductions in sickness absence or employee turnover. For instance, Boselie (2002) found that high control HR systems (including performance appraisal-like activities) results in a lower sickness absence frequency and a shorter duration of the sickness absence. Additionally, providing above-market wages is likely to reduce employee turnover because it creates a better labour market position. Furthermore, the effect of work life balance arrangements can influence both sickness absence and employee turn over (e.g., Greenhaus & Parasuraman, 1999). As a social benefit, employees see the WLB arrangements as a factor that fulfils their social needs in a way they will not choose for another employer or even consider to stop working. As an occupational health intervention, it could reduce sickness absenteeism as a result of a reduction in work-life conflicts. In specifying the boundaries of a high performance work systems framework, these work practices can not be regarded high performance work practices, although they can be effective work practices towards other organizational objectives that indirectly relate to higher organizational performance.

> ***Proposition 3:*** *Not all HRM practices can be regarded to be High Performance Work practices, although they might indirectly impact organizational performance via the reduction of employee turn over and employee sickness absence.*

Passive versus Active Intermediary Performance Mechanisms

The second attribute of the High Performance Work Systems framework concerns the assumption of an intermediary performance mechanism between HPWPs and organizational performance. In this study, the explanation for why the HPWP bundle would affect organizational performance through people was sought in its enhancement of employee vitality. The multidimensional concept of employee vitality can be argued to integrate several possible theoretical mechanisms that link work and organizational factors to organizational outcomes. For instance, there is the *quick response* mechanism (Wall & Martin, 1987) that signifies employees using their tacit and local knowledge to solve operational problems, which closely resembles the job proactivity dimension of employee vitality. Second, there is the mechanism of

employee *learning and development* that incorporates the idea that an employee can not only make changes to the work process, but also that he or she is an active being in changing him- or herself in order to do a good job (see Frese & Zapf, 1994). This closely resembles the developmental proactivity dimension of employee vitality. Furthermore, Schaufeli and Bakker (2004), make a distinction between *energetic* and *motivational* mechanisms. An energetic process involves the employee's maximum of energy/effort expenditure. In brief, it states that when employee energy levels are high instead of low, high performance demands will not lead to either employee withdrawal from high effort expenditure or employee health damage when high performance demands are continued to be met in such way that the maximum energy budget is unhealthily overtaxed (e.g. Hockey, 1997). Therefore, the employee's high availability of energy (being one of our vitality dimensions) can serve as a performance mechanism. Further, Schaufeli et al. (2004) discuss an extrinsic motivational mechanism, which depicts an employee who is willing to dedicate one's energy and abilities to the work task, due to the experience that the environment is instrumental in achieving work goals. In turn, this relates closely to the willingness to invest energy dimension of employee vitality.

Although all four theoretical mechanisms could provide separate explanations for organizational performance effects of work and organizational factors through employee vitality, an integrative explanation can be found in the AMO theory of discretionary effort (Bailey, 1993).This AMO theory states that only to the extent employees have the *A*bility, *and* the *M*otivation *and* the *O*pportunity, they can highly perform. Here, the employee vitality dimensions of availability of energy and developmental proactivity would signify the personal physical and cognitive ability to keep on doing a good job. The motivational aspect is caught in the willingness to invest one's personal energy and abilities in doing a good job, while job proactivity would signify the employee's own actions that take away possible barriers that block their opportunity to do a good job. Together, they can form a powerful combination of active employee states and behaviours towards the enhancement of higher organizational performance. These possible intermediating mechanisms are, however, not exhaustive. Recently, a number of studies have tried to open the "black box" between HRM practices and performance and examined, for instance, the intermediating role of employee cooperation (Lambooij, 2006), social capital (Kase, 2007), human resource flexibility (Beltran-Martin et al., 2008) or employee morale (Vandenberg et al., 1999).

Looking at our results for employee vitality, in chapter 3, we indeed found that the two employee proactivity dimensions and the willingness to invest energy were significantly higher among employees in high performing units than in lower performing units. However, the employee's availability of energy did not differ significantly. Having theorized that employee energy levels are an important aspect of employee vigour and the employee vitality concept, it could be questioned to which extent employee energy signifies an discretionary employee characteristic which, in itself, can make a difference in organizational performance. Additionally, our results showed that the availability of energy comes out the worst with regard to clear work and organizational predictors as well as the extent to which employees within the same work unit have shared levels of personal energy. In sum, this indicates that our evidence for the availability of employee energy as a component of an active performance mechanism is still inconclusive. Employee energy behaves differently than the other vitality dimensions. It seems to be an employee attribute that is more difficult to manage and possibly more dependent on idiosyncratic factors like one's overall health, life style, private/family situation, positive attitude towards life or other demographic variables.

On the other hand, chapter 7 showed that the other three vitality dimensions could be adequately predicted by HPWPs and did relate to work unit performance. When testing the intermediating role, developmental proactivity and the willingness to invest energy were aggregated work unit attributes that partly explained the relationship between the HPWP bundle and work unit performance. When looking more closely at the work practices that constitute our "core" HPWP bundle (functional training, career development and internal staffing efficiency), together they can be argued to activate employees. They are likely to a priori value employee's discretionary effort, by (1) investing in up-to-date skills and abilities, (2) motivating employee growth, (3) ensuring that employees can keep developing themselves either horizontally or vertically, (4) with a staffing strategy which relies on core employees (instead of temporary workers), (5) which are flexibly deployed to get the work done during fluctuations in the labour supply. This is likely to form a coherent bundle of work practices which both meets the developmental and motivational goals of employees as well as the flexibility and high performance goals of management.

Answers to why specifically these HPWPs might constitute a coherent and effective bundle can be traced back to Legge's (1995) notion of managing people

according to developmental-humanist principles. Initially, it refers to an HRM model that values individual talents, aims at eliciting commitment so that employee behaviour is self-regulated (rather than controlled by sanctions) and incorporates high-trust employment relations. Associated goals of the developmental-humanist model are increasing flexibility, adaptability and quality (Guest, 1987). Therefore, it should not be considered a "soft" model that focuses on the nurturing of the individual employee (Truss et al., 1997). Instead, a strategic HR focus on employee training and development can support the numerical and functional flexible needs of the organization, through activating the self-developmental behaviours and motivation of employees. Also, as has been sufficiently discussed, employee commitment or satisfaction does not necessarily have to be part of this model to find a relationship with organizational performance outcomes (Guest, 2002; Bassett, 1994).

Additionally, a recent study by Toh, Campion and Morgeson (2008) empirically distinguished five different bundles of work practices based on cluster analysis. A HRM bundle which they labelled "resource maker" shows much resemblance with the core HPWP bundle distinguished in this dissertation. Organizations adopting this HRM bundle engaged in rigorous selection, training, development and a certain degree of empowerment and teamwork, while placing less emphasis on monetary rewards and annual performance goals. Making resources (or triggering resources to develop and regenerate) can, therefore, be a deliberate and "active" HR strategy which fits the RBV of the firm. Also, organizations that adopted HR bundles which Toh et al. (2008) labelled as "resource maker" differentiated from bundles labelled as "commitment maximizers". This depicts the distinction between the "active" and "passive" nature of work practices respectively. Interestingly, also a in study by Schurer-Lambert, Edwards and Cable (2003), it were variables similar to those in the core HPWP bundle that even were found to constitute negative effects on employee job satisfaction. Schrurer-Lambert et al. (2003) showed that excess levels of skill development, career training and job variety explained a decrease in job satisfaction as an overload - just like a shortage - of variety and developmental attention is not likely to be desirable to employees. Otherwise, the study showed that, in the case of compensatory work aspects like pay, recognition and social relationships, there was no optimum level. The more of these inducements employees obtain, the higher the employee job satisfaction is. Optimistically, this validates the different nature of those work practices which we found to compose an effective HPWP bundle. Despite the fact that we did not test the

HPWP-job satisfaction relationship, it could point out that "active" developmental-flexible HR models cannot be build on the principles of enhancing employee job satisfaction, while "passive" compensatory HR models can build on employee job satisfaction but not on the enhancement of employee vitality dimensions.

In sum, this dissertation attempted to unravel an employee performance mechanism that could explain the impact of HPWPs on work unit performance. Here, the findings indicate that (developmental) employee proactivity and the willingness to invest energy intermediated the relationship between an developmental-flexible HPWP bundle and work unit performance. It is argued that the adoption of this HPWP bundle can be categorized as a "resource maker", as it triggers and activates employees to develop and expend ones personal resources rather than maximizing employee commitment and/or satisfaction.

> ***Proposition 4:*** *A developmental-flexible HPWP bundle constitutes a set of work practices which relates to organizational performance through its activation and motivation of employees to develop oneself and to be willing to invest energy to do an adequate job.*

Organizational and Individual versus Unit-level interventions

Last, the high performance work systems framework focuses on actual workplace *interventions* (instead of experienced workplace characteristics) in the enhancement of organizational performance. In line with other authors (Wright et al., 2003; Sun et al., 2007; Van Veldhoven, 2005; Purcell & Hutchinson, 2007) we chose to examine HRM interventions (enacted HPWPs) at the work unit–level or front line management-level of analysis. As discussed in chapter 5, measuring the enactment of HPWPs at the operational level takes into account the variability of line managers and HR professionals within the same organization with regard to the execution activities in certain HRM domains (Wright & Nishii, 2004; Truss, 2001). Therefore, they have argued that the operational level is the most adequate level to test employee reactions and the subsequent performance effects of adopted HRM practices and decision-making. However, the vast majority of empirical research on the performance effects of HRM practices is conducted at a higher (firm/organizational) level of analysis (see Boselie et al., 2005; for an overview), while the work and organizational determinants of employee vigour and proactivity

are mostly examined at the individual employee-level. Between those HPWP-performance analyses at the higher organizational-level and the lower individual level of analysis, the work unit level was found to be an adequate level to bridge both streams of research.

With regard to the HRM intervention level, in chapter 6, it was tested whether HPWPs related to work experiences that were expected to be influenced by these practices. The study included the average scale scores measuring several of these work experiences of employees working in the same work unit. What was striking is that all of the different experiences of work and the work situations, to a larger extent, showed significant between-unit variance. In other words, to a large extent, employees within the same work unit experience the work situation in a quite similar way. Whereas much of the research that links employee work experiences to well-being and/or performance outcomes does this at the individual level of analysis (which suggests that employees to a large extent differ in their work experiences), our results, however, suggest that this is often not the case. A result also found by both Van Yperen and Snijders, (2000) and Morisson et al. (2003), which indicates the existence of a considerable amount of reliable between-work unit variance in the experienced work characteristics. Additionally, this dissertation study found that these shared employee work experiences are partly attributable to the between-unit differences in the front line/HR management ratings of HPWP intensity. Here, the work unit-level of analysis shows its value in linking management to employee data. It confirms Purcell and Hutchinson's (2007) findings that it are front line managers that "bring HR policies to life". Furthermore, looking at the outcomes of the HPWP bundle at the work-unit level, the bundle was found to relate to employee vitality and work unit performance. This further validates that there is a significant amount of variance in enacted HPWPs, employee reactions and performance outcomes attributable to between-unit differences.

> ***Proposition 5:*** *The HPWP-Performance relationship is a front-line management/ work unit-level HRM process as it is at this level that interventions can make a direct difference in employee work experiences, reactions and subsequent work unit performance outcomes.*

Management by Vitality?

Turning back to the main research question, this dissertation tried to shed light on the features of a common ground for the management of well-being *and* performance. The five key issues and propositions presented above signify building blocks for sharpening the routes through which work practices impact work unit effectiveness through the enhancement of employee vigour and proactivity – i.e. management by vitality. As explored, found and discussed in this dissertation, fertile common ground can be cleared through:

(1) the integration of theoretical perspectives from different disciplines,
(2) the integration of "active" performance and well-being concepts as an employee indicator of sustainable high performance,
(3) the disentanglement of work practices because they are of a differential nature and therefore have different effects,
(4) the emphasis on developmental-flexible HPWP bundle which improves work unit effectiveness through its activation and motivation of employees to develop oneself and to be willing to invest energy
(5) the attention for the work unit level of analysis to identify where HR interventions directly impact employee *and* work unit outcomes.

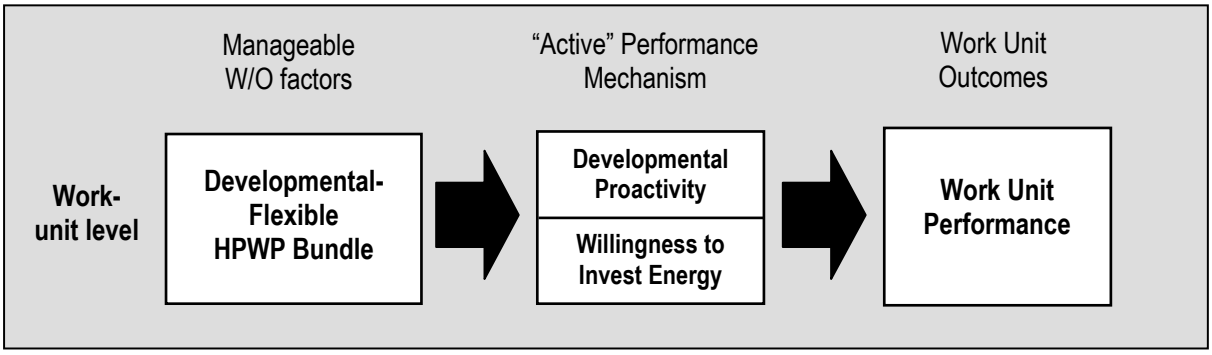


Figure 8-2: The management by vitality–linkage in this dissertation

Figure 8-2 displays the main linkage based on the propositions that follow from the discussion above. This linkage shows the main finding that the work unit's adoption of a developmental-flexible HPWP bundle promotes both the employee's vigour and

employee proactivity towards developing one's skills and abilities. This work unit level process of human resource activation or vitalization was found to relate to higher work unit performance. As such, this management by vitality linkage shows the feasibility of the management of well-being *and* performance at the work unit level.

8.4 THEORETICAL AND METHODOLOGICAL LIMITATIONS

This dissertation's ambition to integrate existing streams of research and in turn disentangle linkages in the management of well-being *and* performance knows its strengths but certainly its limitations.

Theoretical limitations

Theoretically, this dissertation shows that there are considerable overlapping elements in the literature on well-being and performance enhancement, which should encourage researchers to use insights from different disciplines to strengthen one's research hypotheses. However, for reasons of parsimony, the theoretical perspectives we included in chapter 2 are not exhaustive. For instance, the omission of Locke and Latham's notion of the "High Performance Cycle" (Latham, Locke, & Fassina, 2002) or De Sitter's (1994) modern socio-technical design principles could on several accounts have led to an incomplete theoretical picture of important theoretical stances in this field. Moreover, addressing a range of theoretical models runs the risk of missing out on some of the details that are of importance in each of the independent disciplines.

Another omission in this dissertation is the contextualization of our research questions and hypotheses. As a growing part of strategic (HR) management literature asserts the importance of the strategic, institutional, technological or societal context to understand the effects of work practices on employees and organizational performance (Paauwe & Boselie, 2007; Boon, 2008), this dissertation did not take into account the contextual specifics of each of the work units included in this research. As it was stated that the concept of employee vitality is a context-laden concept which was assumed to be valuable in a contemporary insecure, complex and demanding work context, a salient limitation of this research is that these contextual characteristics were not directly measured. In an empirical study quite similar to the one presented in chapter 7, Beltrán-Martín (2006) did include

organizational dynamics as a moderator. She found that to the extent that an organization operates in a more dynamic market context, the effect of human resource flexibility was found to have a stronger effect on sales performance. In a similar vein, Griffin, Neal and Parker (2007) elaborate on the significant contribution of employee proactivity, especially in uncertain and interdependent work contexts. With regard to the contextual differences of the work units in our study it was assumed that they all are subject to increasing outside pressure and uncertainty, however, it would be better to further include explicit hypotheses that take into account the differential HPWP-performance effects across different organizational contexts.

A last limitation refers to the label employee vitality containing both a vigour and proactivity dimension. In the past years, a number of new similar variables have been forwarded of which the concept of *employee engagement* has received the most attention both in US and European academic journals (e.g., Macey & Schneider, 2008; Taris, Cox & Tisserand, 2008). It was not the intention of this dissertation to introduce a new concept which is already covered by other concepts. However, combining employee vigour and proactive behavioural orientations into one rationale has not been done before in the context of identifying effective and endurable work effort. It is in this context that employee vitality complements the literature on active performance and active/positive well-being concepts. More than focusing on employee vitality as a single *variable*, future research is encouraged to treat the different components of employee vitality as entwined theoretical elements within a single research *domain*. As a research domain it provides the possibility to study those active employee attitudes and behaviours that make up a healthy and productive workplace.

Methodological limitations

In studying the management by vitality-linkage, the most recent recommendations were included as it comes to measurement of (high performance) work practices with multiple stakeholders (Gerhart et al., 2000) and testing the HPWP-performance linkage at the work unit level of analysis (Purcell & Hutchinson, 2007). Including multi-actor data from the key principals involved in the work process at the work unit level enabled us to test the multi-level impact of unit-level HPWPs on individual-level vitality, together with the inclusion of work unit performance outcomes. So far, only a few studies (e.g., Patterson et al., 2005; Takeuchi, Lepak,

Wang & Takeuchi, 2007) use a similar design. Furthermore, the possibility to construe reliable HPWP measures by matched line manager and HR professional ratings and to validate the measures by linking them to employee work experiences has not been common practice in HRM literature. This dissertation is in support of this development and encourages future research to include multi-actor data of key stakeholders.

Unfortunately, the data collection had its drawbacks because it was not possible to collect both the employee vitality data and the passive employee performance/well-being data (commitment, satisfaction, strain) within all of the 53 work units. As a consequence, the discussed differential effects of work practices on either employee vitality and passive indicators of organizational commitment, job satisfaction and job strain could not be tested. Also, the validation study in chapter 3 did not contain the same amount of individual cases. For future research, testing the active versus passive employee outcomes of certain work practices is needed to further validate different employee performance mechanisms. The same accounts for the inclusion of work unit-level turnover and sickness absence rates.

Another methodological limitation of this dissertation is that for the work practices that did not relate to employee vitality, we did not check for abnormal restrictions of variance due to our sample. Reasons for the non-significant relationship between above-market wages, work-life balance and dimensions of employee vitality could be due to our choice for the work-unit level of analysis. Because policies on wages and benefits, in a Dutch context, are often agreed upon in collective bargaining agreements, the largest variance in the intensity of these work practices is more likely to exist between organizations than between work units. Future research is encouraged to examine the possibility that different work practices have larger/smaller degrees of variance at different levels of analysis.

Another limitation of this dissertation study is the included work unit performance measure. It constitutes line manager ratings of aspects of overall work unit effectiveness. Of course, what it is that makes a work unit effective can be different for each of the work units included. Because of the great diversity of work units, we chose for a very general measure similar to subjective performance measures in a range of other studies (Wall, Michie, Patterson, Wood, Sheehan, Clegg & West, 2004). For measuring performance (other than turnover/absence rates) across incomparable types of work units, this was the best possible option although further research could also include multiple work unit performance raters in order to

increase the quality and reliability of the measure. Also, for each work unit, some objective ranking via higher level management information could be conducted in order to validate the low/moderate/high score on the subjective performance measure.

Furthermore, in testing the mediating role of aggregated employee vitality scores at a work unit level, there is the risk that it was wrongly assumed that aggregating individual level phenomena would reflect similar phenomena at the work unit level (*atomistic fallacy*). Although aggregation was convenient for testing a mediation effect of vitality between work unit-level work practices and performance variables, the ICC values for three of the four vitality scales were not convincingly high. New multilevel modelling techniques which enable researchers to predict work unit level outcomes from variables measured at the individual level (Croon & Van Veldhoven, 2007) could solve these problems in the future.

Last, it should be noted that this study is cross-sectional, which makes that causal inferences should be interpreted with great caution. Longitudinal research should be pursued when possible. Especially, with regard to the theoretical assumption that employee proactivity and vigour would enhance each other over time.

8.5 REFLECTION AND FUTURE THEORETICAL AND EMPIRICAL CHALLENGES

Reflecting on these propositions underlying the management by vitality and the limitations of this dissertation study several future research issues can be highlighted. Figure 8-2 depicts three issues, which underpin research challenges in examining the management of both well-being and performance. Figure 8-2 addresses the future importance of (1) *balancing* the outcomes of work, (2) *integrating* the mechanisms explaining these outcomes, (3) *disentangling* the different work and organizational determinants and (4) *contextualizing* the expected benefits. The horizontal row of dark grey box shows the *HPWP* → *vitality* → *performance* relationship as studied in this dissertation. Reflecting on this relationship, the vertical and other horizontal linkages will be addressed.

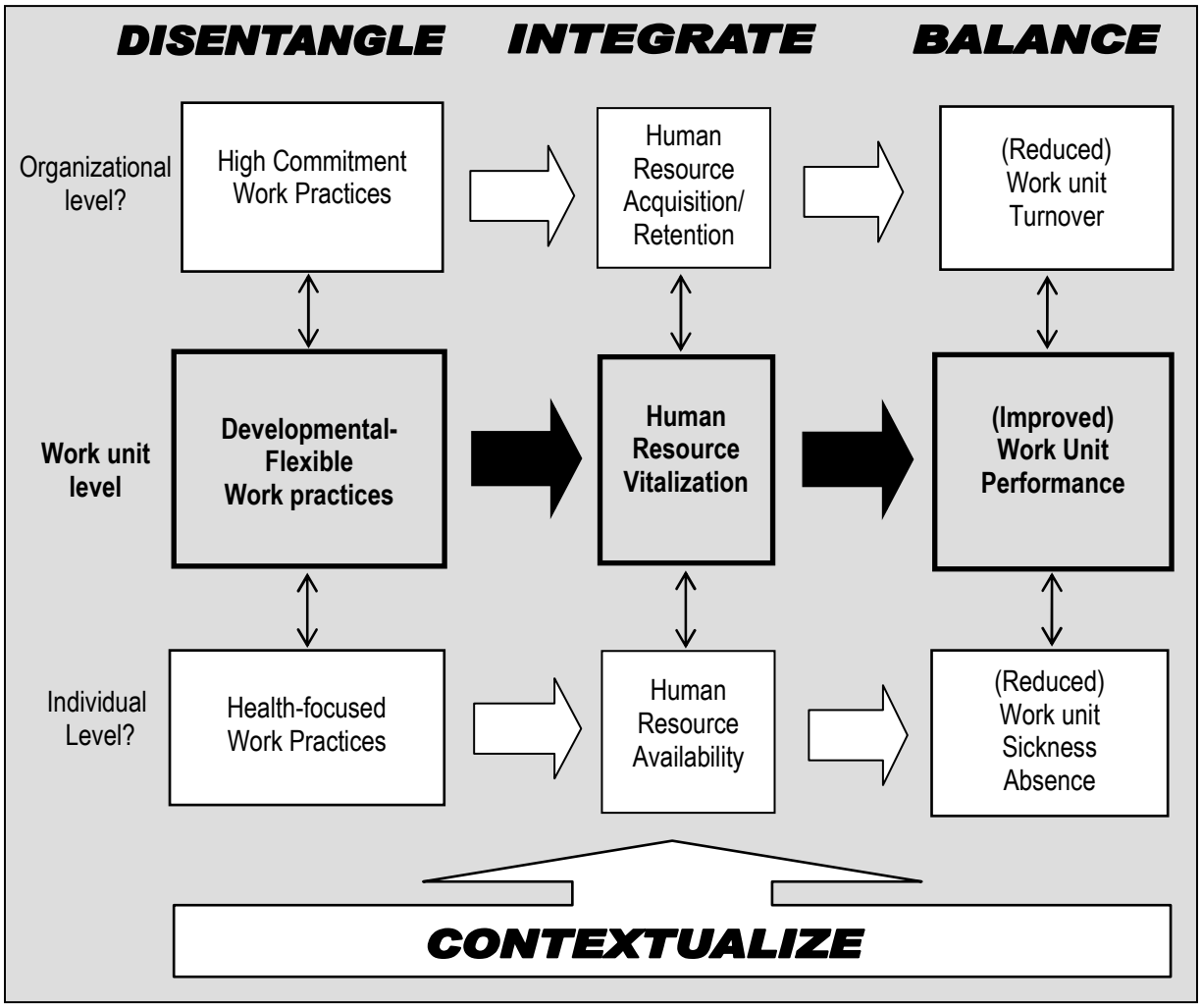


Figure 8-2: Graphical representation of future theoretical and empirical challenges

Balancing the outcomes of work: sustainable HR performance

The vertical row of boxes at the right of Figure 8-2 depicts three outcomes of work that are well known indicators of overall organizational effectiveness. Although this dissertation research only focused on the determinants of general work unit performance, the degree of employee turn over and (sickness) absence are common researched work outcomes. All three outcomes can be characterized as proximal rather than distal outcomes of work. In other words, other than for instance financial performance outcomes, they can be more directly coupled to the health, attitudes and behaviours of employees. This is an important criterion, because in order to adequately study the results of interventions they have to the directly attributable to a particular intervention. Also, the three outcomes of work are less sensitive to the

specific business characteristics, as not for all organizations performance can be defined by improved sales, market share or net-profit (in the case of non-profit organizations). In contrast to HPWS literature that often solely includes the criterion of high operational or financial performance, we would argue that especially with regard to sustainable work unit performance the balance between multiple "bottom lines" (Boxall & Purcell, 2003) is a necessity. Also Kaplan and Norton's (1996) work on the *balanced score card* emphasizes the multiple perspectives on business performance which management could simultaneous focus on. Boxall and Purcell (2003) and Kaplan and Norton (1996) include different multiple performance indicators, but both refer to the balance between the short-term and long-term themes in the pursuit of sustained competitive advantage and long-term organizational viability. In a similar vein, we would propose that with respect to the sustainability of the management of well-being *and* performance at a work unit level, balancing the employee well-being indicators of turn over and (sickness) absence with indicators of work unit effectiveness is key. Manageing this type of sustainable work unit performance implies the focus on a dynamic outcome criterion, in which the evaluation of work unit performance is dependent on the balance between all three work outcomes.

For example, work unit performance cannot be considered sustainable when a work unit successfully maximizes its annual business targets, while simultaneously a considerable amount of employee members that year leave the work unit or get sick. The "collateral damage" done with reaching this year's business targets (=short-term) might compromise next year's work unit effectiveness (=long-term) to an extent that the average work unit performance measured over a longer period of time is *both* not optimal *and* involving high social and financial costs due to replacements, training and the like. Conversely, low employee turnover and/or sickness absenteeism, without adequate work unit effectiveness scores could, in the long run, also endanger long term effectiveness as work units get possibly more and more vulnerable to the situation in which satisfied, unstrained employees are confronted with changes and new pressures to improve work unit effectiveness. The degree to which work units can balance multiple work outcomes is likely to determine its viability (Paauwe, 2004; Boxall & Purcell, 2003). For a better understanding of sustainable HR performance issues at the work unit level, future research challenges lie in the closer examination of multiple balanced outcomes of work and work practices. Theoretically, this implies that employee health and well-

being are not considered by-products in the High Performance Work Systems framework, but key work unit performance indicators in the strife for sustained competitive advantage (Guest, 2002). Empirically, this implies the further inclusion of multiple social and economic performance indicators. More specifically, longitudinal studies on how turnover rates, absence rates and performance ratings influence each other over time would be a step forward in the understanding of the dynamics of sustainable work unit performance.

Integrating explanatory employee mechanisms

A second future research issue is the way multiple explanatory mechanisms can be integrated into a more solid explanation for how the work unit's human resource pool contributes to "multiple bottom lines". This dissertation distinguished between active and passive intermediary performance mechanisms. However, other than constituting just different explanations for the performance outcomes of certain work and organizational factors, they can be argued to be complementary mechanisms that reinforce each other. As depicted in Figure 8-2, the vertical row of boxes in the middle each signify different rationales for how work practices can influence work unit performance. In correspondence with this dissertation's focus (in the dark grey boxes) and suggestions (in the white boxes), the figure shows mechanisms of (1) human resource acquisition/retention, (2) human resource vitalization and (3) human resource availability. Each constitutes different HR themes considered relevant to managerial decision-making at the work unit level, but each with different employee indicators. For instance, in this dissertation we explored the contribution of employee vitality to work unit effectiveness and found a relationship between employee's developmental proactivity and the willingness to invest energy with higher work unit effectiveness. High employee scores on these indicators would signify the degree of the work unit's *human resource activation* or *vitalization*.

From a HPWS / RBV theoretical stance, vital employees might signify a valuable, hard to imitate human resource pool, but Coff (1997) already stated that *human* resources (in comparison to other resources) can walk out the door everyday; or they can get strained or sick. Therefore, the threats to the sustainable HR performance might depend on the degree of *human resource retention* and *human resource availability.* The difference between the latter two mechanisms is that HR retention refers to the preservation and stability of the work unit's human resource pool, while human resource availability refers to the extent that a work unit can

count on the full (mental and physical) potential of the human resource pool. It constitutes the difference between maintaining a stable human resource pool with employees committed to and satisfied with their job and the optimal availability of the human resources in terms of employees with low levels work-related or work-home-related health problems and therefore a greater energy reserve. It is likely that under these conditions, human resource vitalization can have an optimal endurable impact on work unit effectiveness. As this dissertation asserts, it is the activation of employee vigour and (developmental) proactivity that eventually contributes to work unit effectiveness, although the endurable nature of this effect is likely to be dependent on the stable presence of and access to an adequate human resource pool.

Theoretically, a challenge for researchers is first of all to give more specific managerial meaning to the employee attitudes and behaviours that are studied: what exactly do these employee attitudes and behaviours mean to an organization? By validating these clusters of employee attributes through the examination of their differential effects on work unit performance indicators, paves a way for the examination of the complementarities between passive and active employee mechanisms in explaining the effect of work and organizational factors on sustainable work unit performance. This also implies a better understanding of how aggregated work unit-level employee attributes should be interpreted. Organizational climate research (e.g. Patterson et al., 2004; 2005) could be helpful here, as empirical research in this field increasingly includes the aggregated measures of all sorts of employee well-being and behavioural variables in relation to organizational performance outcomes. However, in the examination of how multiple explanatory mechanisms might combine, the tensions between the mechanisms should be taken into account. For instance, employee developmental proactivity could also mean that employee turn over will increase, as employees search for new ways to develop themselves in their profession inside or outside their current job. Here, it would also be interesting to examine whether, for instance, the interaction between organizational commitment and developmental proactivity could explain whether employees would invest in the development of more organizational-specific skills or in more generic skills also valuable in other organizations.

Disentangling the effects of work practices (at different levels)

Finally, findings in this dissertation research emphasize the differential nature of work practices with regard to its effects on employee vitality and work unit

performance. Although HPWS literature sufficiently has addressed these differential effects of work practices which are assumed to impact organizational performance through the enhancement of employee abilities, motivation and opportunity, the actual impact on employee work experiences is mostly neglected. Our study showed that not all work practices could be considered to contribute to work unit effectiveness through active employee performance. As shown in Figure 8-2 and already discussed in more depth, other work and organizational factors that did not make up a developmental-flexible HPWP bundle can still contribute effectively to sustainable work unit performance through reductions in turnover and/or sickness absence rates. Theoretically, this could entail that the notion of a one overall High Performance Work System is not valid. Rather than theorizing from a tight systems perspective, this could entail a more holistic framework which provides room for (1) separate effects of a bundle of high-commitment work practices (like above market wages, work-life balance arrangements), (2) a bundle of developmental-flexible work practices and (3) the effects of health-focused work practices (for instance, workload management, individual health programs).

Also, shown in Figure 8-2, this could mean that a holistic HPWS framework incorporates different levels at which work and organizational factors have the most meaningful variance. For instance, decisions on above market wages might more be an organizational or establishment level matter. Otherwise, deciding on developmental-flexible work arrangements might be more a matter of line managers at the work unit level, while health-focused interventions (to deal with personal workload problems which were found to negatively impact individual-level employee vigour) might already explain the largest part of variance in energy/strain levels between individual employees in the same work unit. Empirically, differentiating in the measurement level of work and organizational factors within a common holistic HPWS framework could be a future research avenue. This also should include the further validation of workplace interventions at different levels in the light of their relationship with multiple mechanisms and outcomes of work. As it is very common to organizations to conduct HR interventions at the organizational, work-unit and individual level, a multi-level HPWS framework could provide a better understanding of the "fit" between these interventions in relation to sustainable performance outcomes. Examining cross-level interactions between different work practices, could result in more insight in, for example, whether an organization which pays above-market wages either supports or obstructs the work

unit's developmental efforts to activate employees into proactive learning behaviours. Also, one could examine whether developmental-flexible work practices interact with individual-level job demands in such way that they provide certain job resources that buffer the negative workload effects on the availability of energy.

Contextualizing the expected benefits of workplace interventions

Last, a large future research issue which was not further included in this dissertation study is the organizational, workplace or job context in which the performance and well-being effects of certain work and organizational are examined. In this study, we included private *and* (semi-)public organizations as well as very different work units which employ workers ranging from, for instance, hospital cleaners, low-skilled machine operators, high-skilled technicians to financial advisors at a local bank. The organizational dependence on discretionary employee effort is likely to be very different across these jobs (Lepak & Snell, 1999). This could imply that investments in a developmental-flexible HPWP bundle and the consequent human resource vitalization constitutes much less added value to a hospital cleaning department than to a work unit of financial advisors. Also, the contextual dynamics are likely to be very different as financial advisors work in a highly competitive market, while hospital cleaners (in this case) do not.

Notwithstanding the fact that each of the different work units is affected by the three performance outcomes described in Figure 8-2, the impact of certain HR interventions might differ in strength, but possibly also in direction. For instance, with regard to strength, above-market wages might be a strong incentive to cleaners to stay with the organization, while for highly educated financial advisors not the current salary but the attractiveness of future salary growth possibilities is much more important. For the latter employee category, current above-market wages are only half the story, while for the cleaners it has a greater impact. Empirically, with regard to the impact of job context on the direction of performance effects, one could examine whether investing in the training and development of financial advisors leads to quality levels and competitiveness going up, while in the case of the cleaners training takes up a substantial amount of time which cannot be spent on manually going about a certain number of square meters which simply need be cleaned (negative performance effect). Therefore, future research should be more sensitive to the organizational or job context in which the benefits of workplace interventions are studied.

8.6 IMPLICATIONS AND SUGGESTIONS FOR PRACTICE

In line with the aforementioned research challenges that follow from this thesis, there are several implications for practice. With the focus on management by vitality at the work unit level, practical suggestions and implications are aimed at first line managers and HR professionals and other management representatives who deal with personnel issues lower down the organizational hierarchy. In Figure 8-3, three main practical implications that underpin a management by vitality approach are shown.

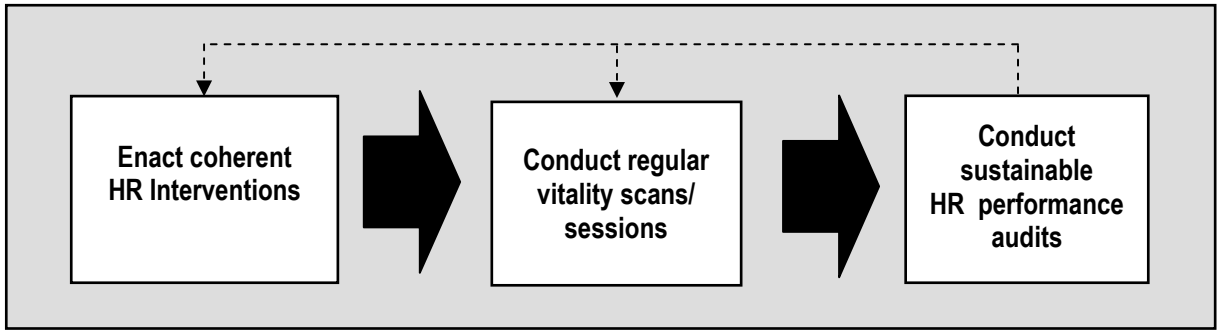


Figure 8-3: Implications and suggestions for practice

Conduct sustainable HR performance audits

In essence, enhancing employee vitality is not the core objective of HR management interventions. In legitimizing internal HR management decisions, practitioners focus on multiple objective HR performance indicators covering business-specific operational performance (e.g., product/service quality, delivery times, sales etc.), turn-over rates and sickness absence rates. Given the challenges stated in the previous paragraph this clearly should not be discouraged, although they could be used in a more balanced and long-term manner. Literature on "balanced score cards" discerns the continuous focus on multiple performance indicators which connect to the needs of multiple stakeholders (higher management, customers and employees). However, although keeping track of multiple performance indicators might give a good overview of the attainment of important business goals, it does not provide insight in possible interrelations and common determinants concerning the goals. It may result in simple "scorecard" or "dashboard" management that views multiple HR performance indicators as decoupled and independent outcomes which

consequently leads management into ad hoc HR interventions to resolve the particular performance or retention problems at hand. Alternatively, suggestions following from this thesis would point towards the formulation of an overarching performance indicator or rationale, which acknowledges the interrelation and tensions between multiple indicators.

Notwithstanding the importance of financial cost/benefits ratios for management decision making, the focus on "sustainable" HR performance ratios could provide additional and more informed insight in the work unit's viability. Such sustainable performance indicators could consist of operational performance indicators in combination with the work unit's turn over and absence rates. Rather than decoupling each of the indicators in decision-making, combining them gives answer to a management question like "at what *social* costs (turn over / absence) does our work unit attain its operational performance goals?". Here, social costs do not refer to the financial costs related to turn-over and absence (replacement costs, recruitment costs), but to the "objective" employee health and behavioural outcomes that accompany operational performance outcomes. The goal of such a sustainable HR performance *audit*, in which organizations could distribute work units along the lines of high/low operational performance and high/low social costs, is to identify those work units that run a future performance or "sustainability"-risk.

For example, if a work unit is a high performance work unit in terms of its high sales performance, while at the same time figures point towards an increase of work unit sickness absences (high social costs), this could indicate that the work unit is boosting sales at the expense of employee health. In the long run, the work unit could face a sustainability risk as the full human resource potential decreases to a point that sales start to drop and extra management pressure on sales enhancement will backfire immediately because employee resilience is now low. The advantage of this practical implication is that combining already existing indicators of past HR performance creates new management information on work unit viability in the future. Important to note is that the objective performance gains and social costs often do not present themselves simultaneously. Therefore, sustainable HR performance audits should not focus on one year but on a longer period of time to grasp a social and operational performance pattern. Interesting are the differences between work units which show stable high operational performance with low social costs and work units which show large fluctuations and imbalances over a period of time. Also, important to note is that line and HR management involvement in

deciding on which HR performance measures are comparable across work units is crucial to the acceptance throughout the organization.

Conduct regular employee vitality scans

As objective sustainable HR performance information can be used to classify the work units, additional data gathering on employee vitality can provide line and HR managers with more in-depth information on why certain work units perform differently. To a certain extent this dissertation study validated the relationship between proactive and vigourous employees and higher general work unit effectiveness. Additionally, this study also distinguished passive employee health and performance attributes (like work-related fatigue and worrying and employee feelings of job satisfaction, commitment) which possibly are more directly linked to employee sickness absence and turnover rates. Combining these measures into a regular employee vitality questionnaire provides data that ties the work unit's objective sustainable performance outcomes to those subjective employee vitality indicators that differ substantially between work units. Identifying the ties between employee information and sustainable work unit performance contributes to the use of survey data as critical performance indicators. The idea of identifying "hot spots" (Gratton, 2007) which refer to teams, workplaces or organizations that buzz with energy, follows a similar line of thought. Gratton's "hot spot" concept overlaps with the notion of a vital work unit, as it subscribes that as long as energy within organizational units is not ignited, employees may feel vigourous, without this leading to any performance advantages. Therefore, bringing employee proactivity measures into employee health and attitude surveys, contributes to a fuller spectrum of actionable employee information for line managers, HR managers and, for instance, occupational health representatives.

Enact coherent HR interventions

A last implication for practice refers to the HR interventions that matter with regard to management by vitality. Here, an important implication from this study is that work practices as indicated by line managers and HR professionals indeed relate to employee self-reports of vigour and proactivity. This emphasizes the role HR interventions play in either diminishing or enhancing employee vitality. It rejects possible views of managers that vitality is an individual, person-dependent aspect, rather than an employee reaction to the work environment. Furthermore, this study

showed that the enhancement of employee vitality is served best when investing in a developmental-flexible HR strategy. This emphasizes the role of line management as a ”resource maker” in contrast to, for instance, managers who choose a “buy” strategy when attracting talent with high above market wages or making use of temporary workers to deal with personnel shortages. This implies a choice for extensive training and development practices accompanied by a clear choice to rely on “core” (and not necessarily more) employees in dealing with fluctuations in work demands and the work process in general. For first line managers that face the organizational reality that they have to work smarter by delivering more with fewer employees this means that they simultaneously should begin to invest in a sophisticated training and development. If not, greater work intensification without learning opportunities can put unhealthy pressure on employees without the room to learn and develop new ways of dealing with changed work situation at hand. If managers would choose to raise pay levels (or unions would call for this) to compensate “core” employees, this increases pay satisfaction but does not foster new “resources”.

Eventually, this might endanger the long-term success of such a choice in terms of employee vitality. The latter implication is drawn from this study’s findings that employee wages and benefits do not mix very well with vitality-enhancing work practices. Of course, this does not mean cutting back on promised wages and benefits. However, line managers should be aware of the differential and/or conflicting nature of work practices. In the case of high wages and benefits, they also are found to temper the positive effects of a HPWP bundle on the employee’s willingness to invest energy. The latter finding additionally points towards to possible distinction between management’s short-term compensatory focus (also including performance appraisals) and a long-term developmental focus. An implication could be that a compensatory focus could very well work for attaining short-term operational performance, but that a long-term developmental focus is eventually more coherent and aligned with the subsequent goal of sustainable HR performance through the enhancement of employee vigour and proactivity (see Dorenbosch, Van de Voorde & Van Veldhoven, submitted). Last, it should be pointed out that focusing on a developmental-flexible HR strategy was also found to relate to employees experiencing less work-life support from their organization. This could have been a result of employees in a more flexible staffing situation who make more

overtime that gradually could turn into a health risk. Therefore, managers must be aware of the possible adverse effects of developmental-flexible HR focus.

8.7 CONCLUDING REMARKS

This dissertation's challenge to examine the determinants and outcomes of employee vitality made clear that embedding a useful and meaningful concept of employee vitality in multiple disciplines and streams of research is a challenge in itself. Nevertheless, by bringing the best of different disciplines into in this study, it provides a first examination of the value of an employee vitality mechanism for both academics and management practitioners that are open to a sustainable approach to the management of both employee well-being *and* organizational (unit) performance. Although the issue has triggered many scholars in the past, this thesis may provide a good starting point, both in terms of integrative theory and methods, to further examine and resolve the ambiguities, paradoxes and tensions with regard to sustaining employee well-being in today's high performance workplaces.

Samenvatting (Summary in Dutch)

Aanleiding

De redenering dat een gezonde en tevreden werknemer ook een productieve werknemer is klinkt niemand onlogisch in de oren. Werknemers die ontevreden zijn in hun werk en regelmatige gezondheidsklachten hebben zullen minder gemotiveerd en in staat zijn om een optimale en productieve inspanning te leveren. Mede hierdoor laten veel organisaties zich informeren over het algehele werknemerwelzijn (en haar risico's) middels periodiek arbeidsgezondheidsonderzoeken (PAGO's) of medewerkertevredenheidsonderzoeken (MTO's). Hiermee krijgen ze inzicht in bijvoorbeeld (op het affectieve vlak) werknemersbetrokkenheid en baantevredenheid en (op het gezondheidsvlak) bijvoorbeeld werkstressklachten Voor een effectief personeelsbeleid ofwel Human Resource Management (HRM) is deze informatie een waardevolle toetssteen bij het vormgeven van HRM instrumenten ofwel praktijken die tot doel hebben het werknemerverloop en –verzuim te beïnvloeden en beperken. Maar dragen HRM praktijken die sturen op een tevreden werknemer zonder al te veel werkstressklachten ook bij aan de prestaties van een organisatie? Met deze 'gevoelslogica' wordt in de praktijk vaak genoegen genomen, maar wetenschappelijk staat deze relatie allesbehalve onomstotelijk vast. Dit proefschrift betoogt en onderzoekt in hoeverre, onder de noemer van *werknemervitaliteit,* "actieve" psychologische werknemerskenmerken een meer accurate toetssteen vormen voor HRM praktijken die bijdragen aan functioneren van een organisatie dan de traditionele focus op het beïnvloeden van "passieve" en "negatieve" kenmerken (zoals werknemerstevredenheid en werkstressklachten).

Centraal staat de *vitale werknemer.* Dit is een werknemer die zich energiek voelt en proactief opstelt door initiatief te nemen en zich hierdoor goed opgewassen ziet om in de complexiteit en onzekerheden van de hedendaagse werkcontext een effectieve bijdrage te leveren aan het functioneren van een organisatie(eenheid). Zonder zichzelf daarbij uit te putten. Ingebed in de *High Performance Work System* (HPWS) literatuur (Appelbaum et al., 2000), wordt onderzocht in hoeverre een combinatie van "High Performance" HRM praktijken de vitaliteit van werknemers zodanig stimuleert dat ook organisatieprestaties er op vooruit gaan. Dit vormt de basis van het conceptueel *management by vitality*–model in dit proefschrift.

Het onderzoek

Een onderzoek naar dit conceptueel model vergt een integratieve kijk op zowel psychologisch arbeidsgezondheidsonderzoek als bedrijfskundig human resource management onderzoek. Beide stromingen leggen vaak andere theoretische accenten op de arbeidsorganisatorische determinanten van welbevinden en prestaties. Daarbij worden deze doorgaans ook op verschillende analyseniveaus (individueel versus organisatieniveau) en met behulp van verschillende onderzoeksinstrumenten en –ontwerpen worden getoetst. Gepositioneerd temidden van deze enerzijds meer *welzijns*gerichte en anderzijds meer *prestatie*gerichte onderzoeksstromingen en gedreven door de zoektocht naar vruchtbare theoretische en methodologische verbintenissen, wordt het *management by vitality*-model verder uitgediept.

Het onderzoek richt zich specifiek op het niveau van (werknemers binnen) organisatie-*eenheden*. De reden hiervoor is dat veelal op dit lijnmanagement niveau HRM in praktijk wordt gebracht. De empirische deelstudies in dit proefschrift steunen op een vragenlijstonderzoek naar o.a. werknemervitaliteit binnen 13 organisaties uit diverse sectoren met een respons van 1769 werknemers (59%) verbonden aan totaal 112 organisatie-eenheden (afdelingen, teams, units). In 12 organisaties was het voor 53 organisatie-eenheden (772 werknemers) mogelijk om middels gestructureerde interviews met lijnmanagers en interne HR adviseurs te onderzoeken (1) welke "High Performance" HRM praktijken met welke intensiteit worden toegepast en (2) welk oordeel lijnmanagers vellen over de algemene prestaties van hun organisatie-eenheid. Uiteindelijk is er gebruik gemaakt van een evenwichtige selectie van zowel de totaal beschikbare werknemersdata als de gekoppelde management- en werknemerdata uit de 53 organisatie-eenheden.

In zes inhoudelijke kernhoofdstukken van dit proefschrift komen vier onderzoeksvragen aan bod.

1. *Wat valt er op basis van voorgaand onderzoek te concluderen over hoe arbeidsorganisatorische factoren simultaan bijdragen aan zowel werknemerwelzijn als organisatieprestaties?*

Hoofdstuk 2 zet de theoretische spanningen uiteen met betrekking het managen van zowel werknemerswelzijn als organisatieprestaties. Onderverdeeld in een optimistisch, pessimistisch, sceptisch en integratief perspectief wordt een onderscheid gemaakt in onderzoeksbevindingen, theorieën en managementmodellen

die een verschillende invloed veronderstellen van arbeidsorganisatorische factoren op werknemerswelzijn én organisatieprestaties. Een *optimistisch* perspectief veronderstelt dat de factoren in het werk die het werknemerwelzijn bevorderen dezelfde zaken zijn die ook organisatieprestaties kunnen bevorderen. Anderzijds, veronderstelt een *pessimistisch* perspectief dat het maximaliseren van prestaties juist op gespannen voet staat met de bevordering van werknemerwelzijn. Een *sceptisch* perspectief gaat ervan uit dat de factoren die prestaties bevorderen niet dezelfde zijn als die factoren die welzijn bevorderen en dus naast elkaar bestaan. Geconcludeerd wordt dat er in de onderzoeksliteratuur opvallend weinig consensus bestaat over de mogelijkheden van het simultaan bevorderen van werknemerwelzijn én organisatieprestaties. Dit leidt er vaak toe dat er in onderzoek vanuit één van de perspectieven wordt geredeneerd.

Echter, theorieën binnen een *integratief* perspectief zouden van toepassing kunnen zijn om tegenstrijdigheden weg te nemen. Dit perspectief erkent dat verschillende arbeidsorganisatorische praktijken een verschillende relatie kunnen hebben op werknemerswelzijn en prestaties (= sceptisch) en dat deze op de korte termijn ook op gespannen voet kunnen staan (= pessimistisch). De kunst is om er als organisatie op de langere termijn voor te zorgen dat, met het leveren van prestatie-inspanningen, de fysieke en psychologische energiebronnen van werknemers niet worden uitgeput maar worden "geregenereerd". Hiermee blijft het welzijnsniveau zodanig op pijl zodat werknemers prestaties duurzaam kunnen blijven leveren (= optimistisch). Om dit perspectief verder invulling te geven, komt in de volgende onderzoeksvraag het onderbouwen en meten van werknemervitaliteit als toetssteen voor het managen van werknemerwelzijn én prestatie aan bod.

2. *Hoe kan een nieuw werknemervitaliteit concept bijdragen aan het onderzoek naar werknemerwelzijn en organisatieprestaties en wat zijn de kenmerken een valide vitaliteitconstruct?*

In **hoofdstuk 3** en **hoofdstuk 4** wordt het concept van werknemer*vitaliteit* verder uitgewerkt. Vitaliteit omvat "positieve" welzijnsaspecten als de ervaren energie die een werknemer heeft en wil besteden in het werk, plus een "actieve" prestatieoriëntatie. Hierbij stelt de werknemer zich proactief op door het nemen van initiatief richting het verbeteren van de eigen werksituatie én de eigen inzetbaarheid op de lange termijn. De combinatie van energie en proactiviteit maakt de vitale

werknemer weerbaar en wendbaar binnen een veeleisende arbeidscontext. Er wordt gesteld dat een vitale werknemer hierdoor effectiever kan bijdragen aan organisatieprestaties dan wanneer organisaties zich zouden richten op traditionele indicatoren zoals het verminderen van psychologische *on*gezondheid en het bevorderen van passieve indicatoren als werknemertevredenheid en betrokkenheid. Met vragenlijstdata van 736 werknemers in 51 organisatie-eenheden wordt getracht een meetbaar vitaliteitconstruct te valideren. Vier verschillende vitaliteitaspecten zijn gemeten: (1) het hebben van energie, (2) het willen investeren van energie, (3) de proactiviteit richting werk(processen) en (4) de proactiviteit richting de eigen inzetbaarheid. De resultaten laten deels zien dat een energieke en proactieve werknemer andere kenmerken heeft dan een betrokken en tevreden werknemer zonder vermoeidheidsklachten. Tevens tonen verdere analyses dat werknemers werkzaam in eenderde van de best presterende organisatie-eenheden meer vitaliteit laten zien dan werknemers in de overige tweederde van de minder presterende organisatie-eenheden. Tussen deze twee groepen werknemers is er echter geen verschil in de traditionele werknemerkenmerken gevonden. Er wordt geconcludeerd dat werknemervitaliteit een adequaat concept is voor het onderscheiden van HRM praktijken die bijdragen aan betere organisatieprestaties zonder werknemers daarbij uit te putten. Welk type HRM praktijken hiervoor het meest in aanmerking komen staat centraal in de derde onderzoeksvraag.

3. *Wat wordt er verstaan onder een High Performance Work System en welke "High Performance" HRM praktijken vallen empirisch samen met de theoretische assumpties van een High Performance Work System?*

Hoofdstuk 5 en **hoofdstuk 6** bieden inzicht in de *High Performance Work System* literatuur, waarin wordt gesteld dat een combinatie van "High Performance" HRM praktijken (HPWPs) werknemers zodanig faciliteert dat ze een organisatie(-eenheid) competitief voordeel kunnen bieden. Veel onderzoek naar *High Performance Work Systems* en organisatieprestaties bewijst dat hiertussen een positieve relatie bestaat. Maar de grote diversiteit in methodes en instrumenten die worden gehanteerd bij het meten van HPWPs maakt het onderzoek ernaar vaak moeilijk onderling vergelijkbaar. Na eerst de stand van zaken op het theoretische en methodologische vlak te hebben uiteengezet, worden de in dit proefschrift meegenomen HPWPs verder uitgelicht. Op basis van gestructureerde interviews met lijnmanagers en

gedecentraliseerde HR managers (functioneel verbonden aan 53 organisatie-eenheden) kwam informatie beschikbaar over de intensiteit waarmee organisatie-eenheden HPWPs op gebied van *(1) efficiënte interngerichte personeelsbezetting, (2) functionele training, (3) loopbaanontwikkeling, (4) prestatiebeoordeling, (5) attractieve arbeidsvoorwaarden en (6) werk-privé balans* in praktijk brengen. Na het construeren van redelijk tot goed betrouwbare schalen voor elk van de HPWPs wordt verder onderzocht op welke wijze deze zes HPWPs door werknemers in het dagelijkse werk beleefd worden. Gekoppelde werknemerdata maakt duidelijk dat vooral de intensiteit waarmee organisatie-eenheden inzetten op efficiënte interngerichte personeelsbezetting, functionele training en loopbaanontwikkeling, de verwachte positieve relaties hebben met werknemerbeleving (bijvoorbeeld genoeg gekwalificeerde collega's, loopbaanmogelijkheden, afwisseling en leermogelijkheden in het werk).

Attractieve arbeidsvoorwaarden en werk-privé maatregelen bleken ook de verwachte relatie te hebben met respectievelijk de werknemerstevredenheid met het salaris en de mogelijkheden om werk en privé te combineren. Anderzijds bleek een beoordelingssystematiek waarmee managers hun werknemers op duidelijke prestatiedoelen sturen niet aan te sluiten bij de verwachte beleving dat werknemers hierdoor beter weten wat precies van hen verwacht wordt en wat het resultaat van hun werk is. Daarbij bleek een focus op prestatiebeoordeling ook negatief te relateren aan bijvoorbeeld de ervaren leermogelijkheden en de afwisseling in het werk. Op basis van deze uitkomsten worden *kern* en *flankerende* HPWPs onderscheiden. De eerste drie genoemde HPWPs worden hierbij als "kern" HPWPs bestempeld, omdat ze gezamenlijk vergelijkbare en meerdere positieve relaties hebben met de verwachte werkbelevingen en in een additionele analyse ook positief relateren aan afdelingsprestaties. Attractieve arbeidsvoorwaarden en werk-privé maatregelen worden als "flankerende" HPWPs bestempeld, omdat ze afzonderlijk wel de verwachte positieve verbanden tonen met de beleving van het werk, maar minder eenduidig verband houden met betere afdelingprestaties. Prestatiebeoordeling wordt in het verdere verloop van het proefschrift niet gerekend tot een HPWP vanwege het ontbreken van een positieve bijdrage aan de verwachte werkbelevingen (en zelfs negatieve relaties laat zien) en omdat het niet relateert aan betere afdelingsprestaties. Het gemaakte onderscheid tussen verschillende HPWPs en het eerder gevalideerde vitaliteitconcept bieden uiteindelijk de bouwstenen voor het beantwoorden van de laatste onderzoeksvraag.

4. *Welke combinatie van "High Performance" HRM praktijken bevordert werknemervitaliteit; en in hoeverre mediëert vitaliteit een positieve relatie tussen "High Performance" HRM praktijken en de prestaties van organisatie-eenheden?*

In **hoofdstuk 7** wordt het conceptueel *management by vitality*-model onder de loep genomen. Met twee studies wordt onderzocht in hoeverre werknemervitaliteit de relatie tussen een combinatie van "kern" en "flankerende" HPWPs en betere afdelingsprestaties kan verklaren. Uit de eerste multi-level studie naar de relatie tussen HPWPs op afdelingsniveau en de vier vitaliteitsaspecten op individueel werknemerniveau, wordt duidelijk dat de optelsom van "kern" HPWPs inderdaad een overwegend sterk positief effect heeft op het hebben en willen investeren van energie in het werk én een proactieve opstelling richting het werkproces en de eigen ontwikkeling. Verder wordt er verwacht dat de relatie tussen de kern focus op efficiënte interngerichte personeelsbezetting, training en personeelsontwikkeling en werknemervitaliteit intensiever is naarmate deze kern HPWPs geflankeerd worden door attractieve arbeidsvoorwaarden en goede werk-privé maatregelen. Dit is echter niet het geval. De resultaten suggereren zelfs dat wanneer een organisatie-eenheid ook sterk inzet op competitieve arbeidsvoorwaarden, de bijdrage van de kern HPWPs aan de werknemersmotivatie om energie in het werk te willen investeren afneemt. Ook vanwege de weinig eenduidige en veelal afwezige relatie tussen de twee flankerende HPWPs en werknemervitaliteit, wordt hiervan de rol in het conceptueel *management by vitality*-model niet verder bekeken.

De tweede studie op afdelingsniveau toetst in hoeverre enkel de bundeling van de drie kern HPWPs leidt tot betere afdelingsprestaties via een verbetering van gemiddelde werknemersvitaliteit in de afdeling. De resultaten wijzen voorzichtig uit dat een positieve relatie tussen de kern HPWPs en afdelingsprestaties vooral wordt verklaard doordat werknemers energie willen investeren in het werk en zich proactief opstellen richting hun eigen ontwikkeling en loopbaan. Het hebben van veel energie en het nemen van initiatief richting het verbeteren van werkprocessen zijn niet aan te wijzen als significante werknemerskenmerken in het bevorderen van afdelingsprestaties. Hierdoor wordt geconcludeerd dat het *management by vitality*-model standhoudt met (1) drie van de zes onderscheiden HPWPs waarmee organisatie-eenheden betere resultaten kunnen boeken en met (2) twee van de vier vitaliteitkenmerken die deze relatie ook deels mediëren. In het laatste hoofdstuk worden de uiteindelijke conclusies bediscussieert en aanbevelingen uiteengezet.

Conclusies en aanbevelingen

Tegen de achtergrond van de complexe taak voor HR en lijnmanagers om werknemers in goede gezondheid maximaal te laten presteren, keert **Hoofdstuk 8** terug naar de centrale vraag in hoeverre werknemervitaliteit hiervoor een adequate toetssteen vormt en waarop lijnmanagers zich kunnen richten om werknemersvitaliteit te bevorderen? Terugblikkend op de voorgaande hoofdstukken worden vijf kernelementen van *management by vitality* onderscheiden.

- ***Benader management by vitality vanuit een integratief perspectief***

De geringe consensus die er bestaat over de arbeidsorganisatorische factoren die zowel het welzijn van werknemers als de prestaties van een organisatie(-eenheid) kunnen bevorderen, maakt dat onderzoek en praktijk baat heeft bij een frisse blik op dit thema. Het erkennen dat het bevorderen van optimale werknemergezondheid voor organisaties die met steeds complexere en snellere veranderingen te maken krijgen ook een "hard" strategisch thema is biedt een opening naar kritische evaluatie van strategische HRM theorie (zoals de High Performance Work Systems literatuur) waarbij werknemerwelzijn vaak buiten beschouwing wordt gelaten. Binnen een integratief perspectief toont dit proefschrift dat niet alle HRM praktijken zowel werknemersvitaliteit als afdelingsprestaties positief beïnvloeden. De systeembenadering waarin een combinatie van een grote diversiteit aan HPWPs het meest effectief wordt geacht moet dus met enige voorzichtigheid worden benaderd als het gaat om de duurzame bevordering van zowel werknemerswelzijn en prestaties. Daarbij valt op dat juist een HRM praktijk als prestatiebeoordeling waar vaak veel van wordt verwacht in termen van betere werknemerprestaties, geen positieve bijdrage levert aan een stimulerende werkomgeving voor vitaliteit.

- ***Onderscheid "actief" van "passief" werknemerswelzijn- en prestaties***

Waar er in arbeidsgezondheidspsychologie een verschuiving plaatsvindt van de focus op "negatieve" werkstressklachten naar "positieve" gezondheidsindicatoren, benadrukt dit proefschrift ook het belang van "actieve" versus "passieve" werknemerkenmerken. De combinatie van positieve en actieve vitaliteitkenmerken als energie en proactiviteit bieden mogelijk een betere benadering voor het onderscheiden van duurzame "High Performance" HRM praktijken die bijdragen aan korte termijn organisatieprestaties en die werknemerbronnen om op de lange termijn te blijven bijdragen niet uitputten. Uit dit onderzoek blijkt dat werknemers

die een combinatie van energie in het werk en proactiviteit vertonen zich kunnen onderscheiden van betrokken, tevreden werknemers zonder werkgerelateerde vermoeidheidsklachten. Organisaties zouden scherper moeten inzetten op vitaliteit als toetssteen voor hun HRM praktijken als ze hiermee het organisatiefunctioneren zouden willen bevorderen. De eerder genoemde PAGO en/of MTO instrumenten zouden hiervoor kunnen worden uitgebreid om de mate van werknemervitaliteit binnen organisatie-eenheden te monitoren.

- ***Onderscheid "High Performance" van flankerende HRM praktijken***

Verder concludeert dit proefschrift dat de intensiteit waarmee wordt ingezet op efficiënte interngerichte personeelsbezetting (waarbij lijnmanagers ervoor kiezen om problemen met de personeelsbezetting met het huidige personeel flexibel op te lossen) een onderscheidend onderdeel is. Samen met de intensiteit waarmee wordt ingezet op het verzorgen van training en opleidingen en werknemers perspectief bieden voor horizontale en/of verticale ontwikkeling, relateren deze drie HRM praktijken positief aan de beleving van een werkomgeving waarin werknemers kunnen, willen en de mogelijkheid krijgen om goed te presteren. Verder blijkt dat de optelsom van deze drie HRM praktijken ook positief relateerde aan afdelingsprestaties, waardoor ze als "kern" HPWPs werden bestempeld. In de literatuur is er nog veel verwarring over welke HRM praktijken nu deel uit maken van een *High Performance Work System*. Dit proefschrift stelt dat er maar enkele HRM praktijken die tot de kern HPWPs behoren. Andere HRM praktijken op het gebied van bijvoorbeeld werk-privé balans en attractieve arbeidsvoorwaarden zijn daarmee mogelijk andere, flankerende HRM praktijken met een ander doel. Ze moeten zeker niet verwaarloosd worden, maar ze kunnen ook niet als onderdeel van het *management by vitality*-model worden gerekend. Ze kunnen wel een belangrijke rol spelen het voorkomen van verzuim en het aantrekken /behouden van personeel.

- ***Vooral een flexibele, ontwikkelingsgerichte HRM focus activeert werknemers***

Blijft over de mogelijke verklaring voor waarom juist de intensiteit waarmee managers inzetten op efficiënte interngerichte personeelsbezetting, functionele training en het bieden van perspectief voor horizontale en/of verticale ontwikkeling het *management by vitality*-model typeren. Een van de verklaringen is dat deze HPWPs een (pro)actieve bijdrage van werknemers ondersteunen, motiveren en mogelijk maken. Door bij tijdelijke bezettingsproblemen dit toch te blijven oplossen

met het aanwezige personeel (in plaats van uitzendkrachten), wordt werknemers ruimte geboden om meer ervaring op te doen in andere taken. Functionele training ondersteunt dit met inhoudelijke taakkennis, terwijl ontwikkelingsmogelijkheden werknemers kunnen motiveren om hiermee richting te geven aan de verdere professionele ontwikkeling. Hiermee wordt een proces geschetst waarin managers leer- en ontwikkelingsbronnen en ruimte bieden waarmee werknemers zodanig worden gestimuleerd om zelf proactief een bijdrage aan de afdelingsprestatie te leveren. Vitaliteit in ruil voor het beter kunnen worden in je baan en loopbaanperspectief, in plaats van meer salaris of andere arbeidsvoorwaarden.

- ***HRM op afdelingsniveau relateert aan werknemers- en afdelingsuitkomsten***

Als laatste vestigt dit proefschrift de aandacht vooral op het afdelingsniveau waarop lijnmanagers ondersteund door HRM professionals keuzes maken in hoe HRM op de werkvloer tot zijn recht komt. Bekend is dat lijnmanagers of afdelingsmanagers binnen organisaties erg kunnen verschillen in hoe correct en intensief ze HRM beleid in praktijk brengen, ook al bekijkt nog veel onderzoek vooral de HRM verschillen tussen organisaties. Wanneer het *management by vitality*-model op een organisatieniveau zou zijn onderzocht, zou niet duidelijk zijn geworden dat de variëteit in hoe werknemers van verschillende afdelingen binnen dezelfde organisatie hun werkomgeving beleven samenhangt met hoe op afdelingsniveau HRM praktijken worden toegepast. Ook zou dan niet duidelijk zijn geworden dat een gedeelde mate van werknemersvitaliteit in afdelingen positief relateert aan de drie onderscheiden HPWPs op afdelingsniveau. Verder blijkt ook dat de uitvoering van HPWPs op het afdelingsniveaus samenhangt met afdelingsprestaties, wat de invulling van HRM (naast alle andere verantwoordelijkheden) voor lijnmanagers op dit niveau tot een belangrijke taak maakt.

De uit dit proefschriftonderzoek voortkomende vijf elementen van *management by vitality* kunnen voor de praktijk handvatten bieden voor het onderbouwen, richting geven en monitoren van duurzaam prestatiegericht HRM beleid op het lijnmanagementniveau.

References

Allen, N.J. & Meyer, J.P. (1990). The Measurement and Antecedents of Affective, Continuance and Normative Commitment to the Organisation. *Journal of Occupational Psychology*, 63, 1-18.

Anderson, N. & West, M. (1996). The team climate inventory: development of the TCI and its applications in teambuilding and innovativeness. *European Journal of Work and Organizational Psychology, 5*, 53-66.

Appelbaum, E., Bailey, T., Berg, P. and Kalleberg, A. L. (2000). *Manufacturing advantage: Why high-performance work systems pay off*. Cornell University Press, Ithaca.

Appelbaum, E. (2002). The impact of new forms of work organization on workers. In G. Murray, J. Bélanger, A. Giles & P-A Lapointe (Eds.), *Work Employment Relations in the High-Performance Workplace*. London and New York: Continuum.

Argyris, C. (1964) Integrating the Individual and the Organization. New York: Wiley.

Arthur, J.B. (1994). Effects of Human-Resource Systems on Manufacturing Performance and Turnover. *Academy of Management Journal, 37* (3), 670-687.

Arthur, J.B. & Boyles, T. (2007). Validating the human resource system structure: A levels-based strategic HRM approach. *Human Resource Management Review, 17* (1), 77-92.

Baer, M. & Frese, M. (2003). Innovation is not enough: Climates for initiative and psychological safety, process innovations and firm performance. *Journal of Organizational Behavior, 24*, 45-68.

Bakker, A.B., Demerouti D. & Verbeke W. (2004) Using the Job Demands-Resources model to predict burnout and performance. *Human Resource Management, 43,* 83-104.

Bailey, T. (1993). *Discretionary effort and the organization of work: Employee participation and work. reform since Hawthorne*. Working paper, Columbia University, New York.

Bandura, A. (1997). *Self-efficacy: The exercise of control*. New York: W.H. Freeman.

Barney, J.B., (1991), Firm Resources and Sustained Competitive Advantage. *Journal of Management, 17*(1), 99-120.

Baron, R.M. & Kenny, D.A. (1986) The moderator-mediator variable distinction in social psychological research: conceptual, strategic, statistical considerations. *Journal of Personality and Social Psychology, 51*, 1173–82.

Bassett, G. (1994). The case against job satisfaction. *Business Horizons, 37*(3), 61-69.

Batt, P. & Valcour, M. (2003). Human Resources Practices as Predictors of Work-Family Outcomes and Employee Turnover. *Industrial Relations, 42* (2), 189–220.

Barker, J.R. (1993). Tightening the iron cage: concertive control in self-managing teams. *Administrative Science Quarterly, 38*, 408–37.

Barling, J., & Griffiths, A. (2003). A history of occupational health psychology. In J. C. Quick & L. E. Tetrick (Eds.), *Handbook of occupational health psychology* (pp. 19–33). Washington, DC: American Psychological Association.

Becker, G.S. (1964). *Human Capital: A Theoretical and Empirical Analysis*. Chicago: University of Chicago Press.

Becker, B., Huselid, M., Pickus, P. & Spratt, M. (1997). HR as a Source of Shareholder Value: research and Recommendations. *Human Resource Management*, 36, 1, 39-47.

Becker, B., & Gerhart, B. (1996). The impact of human resource management on organizational performance: Progress and prospects. *Academy of Management Journal, 39*, 779-801.

Bélanger et al., J., Giles, A. & Murray, G. (2002). Towards a New Production Model: Potentialities, Tensions and Contradictions. In G. Murray, J. Bélanger, A. Giles & P-A Lapointe (Eds.) *Work Employment Relations in the High-Performance Workplace*. London and New York: Continuum

Beltrán-Martín, I. (2006). *Influence of High Commitment Management on Organisational Performance: Human Resource Flexibility as a Mediator Variable.* Universitat Jaume I: Unpublished Dissertation.

Beltrán-Martín, I., Roca-Puig, V., Escrig-Tena, A. & Bou-Llusar, J.C. (2008). Human Resource Flexibility as a Mediating Variable Between High Performance Work Systems and Performance. *Journal of Management, 34*(5), 1009-1044.

Benders, J., Huijgen, F. and Pekruhl, U. (2001). Measuring Group Work; Findings and Lessons from a European Survey, *New Technology, Work and Employment*, 16(3), 204-217.

Benkhoff, B. (1997). Ignoring commitment is costly: New approaches establish the missing link between commitment and performance. Human Relations, 50(6), 701-726.

Bergeron, D.M. (2007). The potential paradox of organizational citizenship behavior: good citizens at what cost? *Academy of Management Review, 32*(4,) p.1078-95.

Blau, G. (1993). Operationalizing Direction and Level of Effort and Testing Their Relationships to Individual Job Performance. *Organizational Behavior and Human Decision Processes, 55*(1), p. 152-170.

Bliese, P.D. (2000). Within-group agreement, non-independence, and reliability: implications for data aggregation and analysis. In K.J. Klein, & S. Kozlowski (Eds.), *Multilevel theory, research, and methods in organizations* (pp. 349-381). San Fransisco: Jossey-Bass.

Blumberg, M. & Pringle, C. D. (1982). The missing opportunity in organizational research: Some implications for a theory of work performance. *Academy of Management Review, 7*, 560-569.

Boselie, P., Dietz, G. and Boon, C. (2005). Commonalities and contradictions in HRM and performance research. *Human Resource Management Journal, 15: 3*, 67-94.

Boselie, P., Paauwe, J., & Jansen, P.G.W. (2001). Human resource management and performance: lessons from the Netherlands. *International Journal of Human Resource Management, 12* (7), 23-41.

Boselie, P. (2002). *Human resource management, work systems and performance: a theoretical-empirical approach*. Amsterdam: Thela Thesis.

Boon, C.T. (2008). *HRM and Fit: Survival of the fittest!?* Erasmus University Rotterdam: Unpublished Dissertation.

Bowen, D.E. & Ostroff, C., (2004). Understanding HRM-firm performance linkages: The role of "Strength" of the HRM system. *Academy of Management Review, 29*, 203-221.

Bowen, D. E., & Waldman, D. A. (1999). Customer-driven employee performance. In D. R. Ilgen & E. D. Pulakos (Eds.), *The changing nature of performance: Implications for staffing, motivation, and development* (pp. 154–191). San Francisco: Jossey-Bass.

Boxall, P. (1996). The strategic HRM debate and the resource-based view of the firm. *Human Resource Management Journal, 6*(3), p. 59-75.

Boxall, P. and Purcell, J. (2003). *Strategy and Human Resource Management*. Basingstoke: Palgrave McMillan.

Brewster, C.J. (1999). Different Paradigms in Strategic HRM: questions raised by comparative research. In Wright, P., Dyer, L., Boudreau, J. and Milkovich, G. (Eds.), *Research in Personnel and HRM*. Greenwich: JAI Press.

Brödner, P. and Forslin, J. (2002). O Tempora, O Mores!: Work Intensity - Why again an Issue? In P. Docherty, J. Forslin and A.B. Shani, *Creating Sustainable Work Systems: Emerging Perspectives and Practice* (pp. 15-26). London: Routledge.

Brown, S.P., Leigh, T.W. (1996). A new look at psychological climate and its relationship to job involvement, effort, and performance. *Journal of Applied Psychology, 81*, 358-68.

Bryk, A.S. & Raudenbusch, S.W. (1992). *Hierarchical linear models: Applications and data analysis methods*. Newbury Park: Sage.

Bunce, D., & West, M.A. (1996). Stress management and innovation interventions at work. *Human Relations, 49*, 209–232.

Campbell, J. P. (1999). The definition and measurement of performance in the new age. In D. R. Ilgen & E. D. Pulakos (Eds.), *The changing nature of performance. Implications for staffing, motivation, and development* (pp. 399–429). San Francisco: Jossey-Bass.

Campion, M.A. & Thayer, P.W. (1987) Job design: approaches, outcomes, and trade-offs. *Organizational Dynamics, 15*(3), 66-79.

Campion, M.A. (1988). Interdisciplinary approach to job design. *Journal of Applied Psychology, 73*(3), 467-81.

Campion, M.A. & McClelland, C.L. (1991). Interdisciplinary examination of the costs and benefits of enlarged jobs: A job design quasi-experiment. *Journal of Applied Psychology,76*, 186-198.

Campion, M.A., Mumford, T.V., Morgeson, F.P., & Nahrgang, J.D. (2005). Work redesign: Obstacles and opportunities. *Human Resource Management, 44*, 367-390.

Capelli, P. and Neumark, D. (2001). Do "high-performance" work practices improve establishment-level outcomes? *Industrial and Labor Relations Review 54*, 737-775.

Carver, C. S., Scheier, M. F., & Weintraub, J. K. (1989). Assessing coping strategies: A theoretically based approach. *Journal of Personality and Social Psychology, 56,* 267-283.

Chang, E. (2005). Employees' overall perception of HRM effectiveness. *Human Relations*, 58(4), 523-544

Crant, J.M. (2000). Proactive behavior in organizations. *Journal of Management, 26*, 435-462.

Coff, R. (1997). Human Assets and Management Dilemmas: Coping with Hazards on the Road to Resource-based Theory. *Academy of Management Review, 22*(2), 374-402.

Cohen, J. (1988). *Statistical power analysis for the behavioral sciences*. Hillsdale, NJ: Lawrence Earlbaum Associates.

Colbert, B.A. (2004): The Complex Resource-based View: Implications for Theory and Practice in Strategic Human Resource Management. *Academy of Management Review,* 29 (3), 341-358.

Combs, J.G., Liu, Y. Hall, A.T., Ketchen, D.J. (2006). How much do high performance work practices matter? A meta-analysis of their effects on organizational performance. *Personnel Psychology, 59*, 501-528.

Cooper, C.L. (2006). The challenges of HRM in managing employee stress and improving well-being. In: C. Cooper & R. Burke (Eds.*) The Human Resources revolution: Research and practice*. Elsevier.

Coyle-Shapiro, J.A.M., Kessler, I. & Purcell, J. (2004). Reciprocity or "it's my job": exploring organizationally directed citizenship behavior in a National Health Service setting. *Journal of Management Studies, 41*(1), 85-106.

Cox, T. (1988). Organizational Health. *Work & Stress, 2*, p. 1-2.

Crant, J. M. (2000). Proactive behavior in organizations. *Journal of Management, 26,* 435–462.

Croon, M., & van Veldhoven, M. (2007). Predicting group level outcome variables from variables measured at the individual level: a latent variable multilevel approach. *Psychological Methods, 12*(1), 45-57.

Cully, M., Woodland, S. Dix, G. & O'Reilly, A. (1999). *Britain at Work: 1998: Workplace Relations Survey*. London: Routledge.

Csikszentmihalyi, M. (1998). *Finding Flow: The Psychology of Engagement with Everyday Life*. New York: Basic Books.

Datta, D., Guthrie, J. & Wright, P. (2005). HRM and labor productivity: does industry matter? *Academy of Management Journal, 48*, 135–45.

Danna, K. & Griffin, R.W. (1999). Health and well-being in the workplace: A review and synthesis of the literature. *Journal of Management, 25*(3), 357-384.

Den Hartog, D. N., Boselie, P. & Paauwe, J. (2004). Performance Management: A Model and Research Agenda. *Applied Psychology, 53*(4), 556-569.

de Rijk, A. E, LeBlanc, P. M., Schaufeli, W. B., & de Jonge, J. (1998). Active coping and need for control as moderators of the job demand-control model: Effects of burnout. *Journal of Occupational & Organizational Psychology, 71*, 1-18.

Delbridge, R., & Turnbull, P. (1992). Human resource maximization: the management of labour under just-in-time manufacturing. In: P. Blyton, & P. Turnbull (Eds.), *Reassessing human resource management* (pp. 56–73). London: Sage.

Delery, J.E. (1998). Issues of fit in strategic human resource management: Implications for research. *Human Resource Management Review*, 8(3), 289-309.

Delery, J.E., & Shaw, J. D (2001). The strategic management of people in work organizations: Review, synthesis, and extension. In G. Ferris (Ed.), *Research in personnel and human resources management*, vol. 20: 165–198. Greenwich, CT: JAI Press.

Demerouti, E., Bakker, A.B., Nachreiner, F. & Schaufeli, W.B. (2001). The job-demands resources model of burnout. *Journal of Applied Psychology, 86*, 499-512.

Demerouti, E. (2006). Job characteristics, flow, and performance: The moderating role of conscientiousness. *Journal of occupational health psychology, 11*(3), 266-280.

Demerouti, E., Taris, T.W., & Bakker, A.B. (2007). Need for recovery, home-work interference and performance: Is lack of concentration the link? *Journal of Vocational Behavior, 71*, 204-220.

Docherty, P., Forslin, J. and Shani, A. B. (Rami) (Eds.) (2002). *Creating Sustainable Work Systems: Emerging Perspectives and Practice.* London: Routledge.

Docherty, P., Forslin, J., Shani, A.B. and Kira, M. (2002). Emerging Work Systems: From Intensive to Sustainable. In: P. Docherty, J. Forslin andA.B. Shani: *Creating Sustainable Work Systems: Emerging Perspectives and Practice (pp.* 3-14). London: Routledge.

Doef, M., van der & Maes, S. (1999). The job demand-control (-support) model and psychological well-being: A review of 20 years of empirical research. *Work & Stress, 13,* 87–114.

Dorenbosch, L.W., Van Engen, M.L. & Verhagen, M. (2005). On-the-job Innovation: The Impact of Job Design and Human Resource Management through Production Ownership. *Creativity and Innovation Management, 14(2)*, 129-141

Dorenbosch, L.W., van de Voorde, K. & van Veldhoven, M. (*submitted*). Performance Management and Employee Proactivity: Differential Effects and the Mediating Role of Work Characteristics.

Dyer, L. & Schafer, R. (1999). From Human Resource Strategy to Organizational Effectiveness: Lessons from Research on Organizational Agility. In: P. Wright, L. Dyer, J. Boudreau and G. Milkovich (eds.). *Strategic Human Resources Management in the 21st Century.* Stamford, CT: JAI Press.

Dyne, L. van & LePine, J. A. (1998). Helping and voice extra-role behaviors: Evidence of construct and predictive validity. *Academy of Management Journal, 41,* 108–119.

Edwards, P.K. (2001). The Employment Relationship and the Field of Industrial Relations. In: P.K. Edwards (Ed.): Industrial Relations: Theory and Practice in Britain. Oxford: Blackwell.

Edwards, P.K. & Wright, M. (2001) High-involvement work systems and performance outcomes: the strength of variable, contingent and context-bound relationships. *International Journal of Human Resource Management, 12 (4),* 568-585

Edwards, J. R., Scully, J. A., & Brtek, M. D. (2000). The nature and outcomes of work: A replication and extension of interdisciplinary work-design research. *Journal of Applied Psychology, 85*, 860–868.

Fay, D. & Kamps, A. (2006). Work characteristics and the emergence of a sustainable workforce: Do job design principles matter? *Gedrag & Organisatie, 19 (2)*, 184-203.

Fay, D., & Sonnentag, S. (2002). Rethinking the effects of stressors: A longitudinal study on personal initiative. *Journal of Occupational Health Psychology, 7,* 221–234.

Fisher, C. (2003). Why do lay people believe that satisfaction and performance are correlated? Possible sources of commonsense theory. *Journal of Organizational Behavior, 24,* 753–777.

French J.R.P., Caplan, R.D. & Van Harrison R. (1982). *The mechanisms of job stress and strain*. New York: Wiley.

Frese, M., & Zapf, D. (1994). Action as the core of work psychology; A German approach. In H. C. Triandis, M.D. Dunnette, & L. M. Hough (Eds.), *Handbook of Industrial and Organizational Psychology* (pp. 271-340). Palo Alto, CA: Consulting Psychologists Press.

Frese, M., & Fay, D. (2001). Personal initiative: An active performance concept for work in the 21st century. In B. M. Staw & R. L. Sutton (Eds.), *Research in organizational behavior* (pp. 133–187). Stamford, CT: JAI Press.

Frese, M., Fay, D., Hilburger, T., Leng, K., & Tag, A. (1997). The concept of personal initiative: Operationalization, reliability and validity in two German samples. *Journal of Occupational and Organizational Psychology, 70*, 139–161.

Frese, M., Kring, W., Soose, A., & Zempel, J. (1996). Personal initiative at work: Differences between East and West Germany. *Academy of Management Journal, 39*, 37–63.

Frey, B. & Jegen, R. (1999). *Motivation Crowding Theory: A survey of empirical evidence.* Working Paper: University of Zurich.

Gallie, D., White, M., Cheng, Y. & Tomlinson, M. (1998). *Restructuring the Employment Relationship*. Oxford: Clarendon Press.

Gardner, H., Csikszentmihalyi, M. & Damon, W. (2001). *Good Work: When excellence and ethics meet*. New York: Basic Books.

Gerhart, B. (2005) Human Resources and Business Performance: Findings, Unanswered Questions, and an Alternative Approach. *Management revue, 16*(2), 174-185.

Gerhart, B., Wright, P.M, McMahan, G.C & Snell, S.A. (2000): Measurement error in research on human resources and firm performance: How much error is there and how does it influence effect size estimates? *Personnel Psychology*, 53, 803-834.

Giles, A., Murray, G. & Bélanger et al. , J. (2002). Introduction: Assessing the Prospects for the High Performance Workplace. In G. Murray, J. Bélanger, A. Giles & P-A Lapointe (Eds.) *Work Employment Relations in the High-Performance Workplace*. London and New York: Continuum

Godard, J. & Delaney, J. T. (2000). Reflections on the "high performance" paradigm's implications for industrial relations as a field. *Industrial & Labor Relations Review, 53 (3),* 482-502.

Godard, J. (2001) High Performance and the Transformation of Work: the Implications of Alternative Work Practices for the Experience and Outcomes of Work. *Industrial and Labor Relations Review, 54*(4), 776-805

Godard, J. (2004). A Critical Assessment of the High-Performance Paradigm. *British Journal of Industrial Relations, 42* (2), 349–378.

González-Romá, V., Schaufeli, W.B., Bakker A.B. & Lloret, S. (2006). Burnout and work engagement: Independent factors or opposite poles? *Journal of Vocational Behavior, 68,* 165–174.

Gouldner, A.W. (1960). The norm of reciprocity: A preliminary statement. *American Sociological Review, 25* (2): 161-178.

Gratton, L. (2007). *Hot Spots: Why Some Teams, Workplaces, and Organizations Buzz with Energy - And Others Don't*. San Francisco: Berrett-Koehler Publishers.

Green, F. (2004). Why Has Work Effort Become More Intense? *Industrial Relations, 43* (4), 709–741.

Green, F. (2001). It's Been a Hard Day's Night: The Concentration and Intensification of Work in Late 20th Century Britain. *British Journal of Industrial Relations 39(1),* 53–80.

Greenhaus, J. H., & Parasuraman, S. (1999). Research on work, family, and gender: Current status and future directions. In Powell, G. N. (Ed.), *Handbook of gender and work* (pp. 391-412). Newbury Park, CA: Sage.

Griffin, M. A., Neal, A., & Parker, S.K. (2007). A new model of work role performance: Positive behavior in uncertain and interdependent contexts. *Academy of Management Journal, 50*, 327-347.

Griffin, M.A., Neal, A. and Parker, S.K. (2007). A new model of work role performance: Positive behavior in uncertain and interdependent contexts. *Academy of Management Journal, 50*(2), 327-347.

Griffin, M.A., Neal, A., Neale, A. (2000). The contribution of task performance and contextual performance to effectiveness: Investigating the role of situational constraints. *Applied Psychology: An International Review, 49*, 516-532.

Guest, D.E., Conway, N. and Dewe, P. (2004). Using Sequential tree analysis to search for 'bundles' of HR practices. *Human Resource Management Journal*, 14 (1), 79-96.

Guest, D.E., Michie, J., Conway, N. and Sheehan, M. (2003). Human Resource Management and Corporate Performance in the UK. *British Journal of Industrial Relations, 41*, 291-314.

Guest, D.E. (2002). Human Resource Management, Corporate Performance and Employee Well-being: Building the Worker into HRM. *The Journal of Industrial Relations, 44*(3), 335-358.

Guest, D.E. (2001). Human resource management: When research confronts theory. *International Journal Human Resource Management, 12* (7), 10-25.

Guest, D.E. (1999). Human resource management: The Worker's Verdict. *Human Resource Management Journal, 9* (3), 5-26.

Guest, D.E. (1997). Human resource management and performance. *International Journal of Human Resource Management, 8*(3), 5-25.

Guest, D.E. (1987). Human Resource Management and Industrial Relations. *Journal of Management Studies, 24*(5), 503-521.

Hallberg, U., Schaufeli, W.B. (2006). "Same same" but different?: Can work engagement be discriminated from job involvement and organizational commitment? *European Psychologist, 11*, 119-127.

Hart, P.M. & Cooper, C.L. (2001). Occupational Stress: Toward a More Integrated Framework. In N. Anderson, D.S. Ones, H.K. Sinangil, & C. Viswesvaran (Eds), *Handbook of Industrial, Work and Organizational Psychology* (vol 2: Personnel Psychology). London: Sage.

Hammer, T.H., Saksvik, P.O., Nytro, K., Torvatn, H. & Bayazit, M. (2004). Expanding the Psychosocial Work Environment: Workplace Norms and Work-Family Conflict as Correlates of Stress and Health. *Journal of Occupational Health Psychology, 9* (1), 83-97.

Hackman, J.R. & Oldham, G.R. (1975). Development of the Job Diagnostic Survey. *Journal of Applied Psychology, 60*, 159–170.

Hackman, J.R. & Oldham, G.R. (1980*). Work redesign*. Reading, MA: Addison-Wesley.

Herzberg, F. (1966). *Work and the Nature of Man*. Cleveland: World Publishing.

Hesketh, B. & Neal, A. (1999). Technology and performance. In D. Ilgen & E. Pukalos (Eds.) *The Changing Nature of Work Performance: Implications for Staffing, Personnel Actions, and Development*. San Francisco: Jossey Bass.

Hesketh, A. & Fleetwood, S. (2006). (Not) Measuring the HRM-Organizational Performance Link: Applying Critical Realist Meta-theory. *Organization, 13*(5), 677-699.

Hobfoll, S.E. (1989). Conservation of resources: A new attempt at conceptualizing stress. *American Psychologist, 44*: 513–524.

Hockey, G.J. (1997). Compensatory control in the regulation of human performance under stress and high workload: a cognitive–energetical framework. *Biological Psychology, 45*, 73–93.

Hockey, G.R.J. (2000). Work environments and performance. In N. Chmiel (Ed.), *Work and organizational psychology: a European perspective* (pp. 206–230). Oxford, England: Basil Blackwell.

Hofmann, D. A., & Tetrick, L. E. (2003). On the etiology of health: Implications for "organizing" individual and organizational health. In D. A. Hofmann & L. E. Tetrick (Eds.) *Health and safety in organizations: A multilevel perspective*. San Francisco: Jossey-Bass.

Hoque, K. (1999). Human Resource Management and Performance in the UK hotel Industry. *British Journal of Industrial Relations, 37*(3), 419-443.

Horgan, J. (2003). *High Performance Human Resource Management in Ireland and the Netherlands: Adoption and Effectiveness.* ICS/RUG: Unpublished Dissertation.

Hulst, M., van der & Geurts, S. (2001). Associations between overtime and psychological health in high and low reward jobs. *Work and Stress, 15,* 227–240.

Hunter, L.W. & Thatcher, S.M.B. (2007). Feeling the Heat: Effects of Stress, Commitment, and Job Experience on Job Performance. *Academy of Management Journal*, 50(4), 953 – 968.

Humphrey, S.E., Nahrgang, J.D., & Morgeson, F.P. (2007). Integrating motivational, social, and contextual work design features: A meta-analytic summary and theoretical extension of the work design literature. *Journal of Applied Psychology, 92*, 1332-1356.

Huselid, M. A. (1995). The Impact of Human Resource Management Practices on Turnover, Productivity, and Corporate Financial Performance. *Academy of Management Journal, 38 (3)*, 635-672.

Huselid, M.A., & Becker, B.E. (2000). Comment on "Measurement error in research on human resources and firm performance: How much error is there and how does it influence effect size estimates?" by Gerhart, Wright, McMahan, and Snell. *Personnel Psychology, 53*(4), 835-854.

Huselid, M.A., Jackson, S.E. & Schuler, R. (1997). Technical and Strategic Human Resource Management Effectiveness as Determinants of Firm Performance. *Academy of Management Journal*, 40, 1, 171-188

Huzzard, T. (2003) *The Convergence of QWL and Competitiveness: A Swedish Literature Review*. Stockholm: National Institute for Working Life.

Iaffaldano, M.T. & Muchinsky, P.M. (1985). Job satisfaction and job performance: A meta-analysis. *Psychological Bulletin, 97,* 251-273.

Ichniowski, C., Shaw, K. & Prennushi, G. (1997). The effects of human resource management practices on productivity: A study of steel finishing lines. *American Economic Review, 87*(3), 291-313.

Ilgen, D.R., & Pulakos, E.D. (Eds.) (1999). *The changing nature of performance: Implications for staffing, motivation, and development*. San Francisco: Jossey-Bass.

Ingledew, D.K., Hardy, L., & Cooper, C.L. (1997). Do resources bolster coping and does coping buffer stress? An organizational study with longitudinal aspect and control for negative affectivity. *Journal of Occupational Health Psychology, 2,* 118-133.

Jacobs, R.L. & Washington, C. (2003). Employee development and organizational performance: a review of literature and directions for future research. *Human Resource Development International, 6*(3), 343-354.

Janssen, O. (2000). Job demands, perceptions of effort-reward fairness, and innovative work behavior. *Journal of Occupational and Organizational Psychology,* 73, 287-302.

Jex, S.M. (1998). *Stress and job performance: Theory, research, and implications for managerial practice*. Thousand Oaks, CA: Sage.

Johns, G. (2006). The essential impact of context on organizational behaviour. *Academy of Management Review, 31, (2)*, 386-408.

Judge T.A., Thoreson C.J., Bono J.E., Patton G.K. (2001). The job satisfaction-job performance relationship: a qualitative and quantitative review. *Psychological Bulletin, 127*, 376-407.

Kanfer, R., & Ackerman, P.L. (2004). Aging, adult development and work motivation. *Academy of Management Review, 29*(3), 440-458.

Kalleberg, A.L. (2001). Organizing Flexibility: The Flexible Firm in a New Century. *British Journal of Industrial Relations, 39* (4), 479-504.

Kaplan, R.S. & Norton, D.P. (1996). *The Balanced Scorecard: Translating Strategy into Action*. Boston: Harvard Business School Press.

Karasek, R.A. (1979). Job demands, job decision latitude, and mental strain: Implications for job redesign. *Administrative Science Quarterly, 24,* 285–308.

Karasek, R.A. (1985). *Job content questionnaire and user's guide*. Lowell: University of Massachusetts Lowell, Department of Work Environment.

Karasek, R. A., & Theorell, T. (1990). *Healthy work: Stress, productivity, and the reconstruction of working life.* New York: Basic Books.

Kaše, R. (2007). *Effects of HR Practice on Knowledge transfer in knowledge-intensive firms: The mediating role of social network dimension*. University of Ljubljana, Faculty of Economics: Unpublished Dissertation.

Kelly, J.E. (1992). Does job re-design theory explain job re-design outcomes? *Human Relations, 45*, 753–774.

Kepes, S. & Delery, J.E. (2006) Designing Effective HRM Systems: The Issue of HRM Strategy. In: R.J. Burke & C.L. Cooper (Eds.), *The Human Resources revolution. Why putting people first matters*. Amsterdam: Elsevier Science

Kinnie, N., Hutchinson, S., Purcell, J., Rayton, B. & Swart, J. (2005). Satisfaction with HR practices and commitment to the organisation: Why one size does not fit all. *Human Resource Management Journal, 15* (4). 9-29.

Klein, K.J. & Kozlowski, S.W.J., (Eds.) (2000). *Multilevel theory, research, and methods in organizations: Foundations, extensions, and new directions*. San Francisco: Jossey-Bass.

Kristof, A.L. (1996). Person-organization fit: An integrative review of its conceptualizations, measurement, and implications. *Personnel Psychology, 49* (1), 1-49.

Koys, D.J. (2001). The Effects of Employee Satisfaction, Organizational Citizenship Behaviour, and Turnover on Organizational Effectiveness: A Unit-Level, Longitudinal Study. *Personnel Psychology, 54*, 101-114.

Lambooij, M. Koster, F., Sanders, K. & Zwier, M. (2006). Human resource practices and organisational performance: can the HRM-performance linkage be explained by cooperative behaviours of employees? *Management Revue, 17*, 223-240.

Latham, G. P., Locke, E. A., & Fassina, N. E. (2002). The high performance cycle: Standing the test of time. In S. Sonnentag (Ed.), *Psychological management of individual performance* (pp. 201–228). Chichester: Wiley.

Lawler, E. E. (1986). *High Involvement Management*. San Francisco: Jossey-Bass.

Lawler, E.E., Mohrman, S.A. & Ledford, G.E. (1995) *Creating high performance organizations: practices and results of employee involvement and total quality management in Fortune 1000 companies*. San Francisco: Jossey-Bass.

Lazarus, R. S., & Folkman, S. (1984*). Stress, appraisal, and coping*. New York: Springer.

Legge, K. (1995). *Human Resource Management: Rhetorics and Realities*. Basingstoke: Macmillan.

Legge, K. (2005). *Human Resource Management: Rhetorics and Realities*. (Anniversary Edition). London: Macmillan.

Lepak, D., & Snell, S. A. (1999). The human resource architecture: Toward a theory of human capital allocation development. *Academy of Management Review*, 24, 31–48.

Lepak, D.P., & Snell, S.A. (2002). Examining the human resource architecture: The relationships among human capital, employment, and human resource configurations. *Journal of Management*, 28, 517-543.

Lepak, D.P., Takeuchi, R., Erhardt, N.L., & Colakoglu, S. (2006). Emerging perspectives on the relationship between human resource management and performance. In R. Burke, and C. Cooper (Eds.), *The Human Resources Revolution: Why Putting People First Matters.* Amsterdam: Elsevier Science.

LePine, J. A., Erez, A. & Johnson, D.E. (2002). The nature and dimensionality of organizational citizenship behavior: A critical review and meta-analysis. *Journal of Applied Psychology, 87,* 52–65.

LePine, J. A., Podsakoff, N.P., & LePine, M.A. (2005). A meta-analytic test of the challenge stressor-hindrance stressor framework: An explanation for inconsistent relationships among stressors and performance. *Academy of Management Journal, 48*, 764-775.

Lindsay, C. & McQuaid, R. (2004). Avoiding the 'McJobs': Unemployed Job Seekers and Attitudes to Service Work. *Work, Employment & Society, 18* (2), 297-319.

Lloyd, C. & Payne, J. (2006) Goodbye to all that? a critical re-evaluation of the role of the high performance Organization. *Work Employment & Society, 20*, 151-165.

Locke, E.A. & Latham, G.P. (2004). What should we do about motivation theory? Six recommendations for the twenty-first century. *Academy of Management Review, 29*, 388-403

Luthans, F. (2002). The need for and meaning of positive organizational behavior. *Journal of Organizational Behavior, 23,* 695-706.

Macey, W.H., & Schneider, B. (2008). The meaning of employee engagement. *Industrial and Organizational Psychology: Perspectives on Science and Practice, 1*, 3–30.

Macduffie, J.P. (1995). Human Resource Bundles and Manufacturing Performance - Organizational Logic and Flexible Production Systems in the World Auto Industry. *Industrial & Labor Relations Review, 48* (2), 197-221.

Marchington M. & Grugulis I. (2000) Best practice' human resource management: perfect opportunity or dangerous illusion? *International Journal of Human Resource Management, 11*(6), 1104-1124.

McGregor, D. (1960) *The human side of the enterprise*. New York: McGraw-Hill.

Maslach, C., & Leiter, M. P. (1997). *The truth about burnout: How organizations cause personal stress and what to do about it*. San Francisco: Jossey-Bass.

Maslach, C., Schaufeli, W.B. & Leiter, M.P. (2001). Job Burnout. *Annual Reviews of Psychology, 52*, 397-422.

Meijman, T. F., & Mulder, G. (1998). Psychological aspects of workload. In P. J. D. Drenth & H. Thierry (Eds.), *Handbook of work and organizational psychology* (pp. 5–33). Hove, England: Psychology Press.

Mikkelsen, A., Øgaard, T., & Landsbergis, P. (2005). The effects of new dimensions of psychological job demands and job control on mastery of work and occupational health. *Work & Stress, 19* (2), p. 1-23.

Mohrman, S.A. & Cohen, S.G. (1995). When people get out of the box. New relationships, new systems. In A. Howard (Ed.), *The Changing Nature of Work*. San Francisco, CA: Jossey-Bass.

Morgeson, F.P., Johnson, M.D., Campion, M.A., Medsker, G.J. & Mumford, T.V. (2006). Understanding reactions to job redesign: A quasi-experimental investigation of the moderating effects of organizational context on perceptions of performance behavior. *Personnel Psychology, 59*, 333-363.

Morgeson, F. P., & Campion, M. A. (2002). Minimizing tradeoffs when redesigning work: Evidence from a longitudinal quasi-experiment. *Personnel Psychology, 55*, 589-612.

Morrison, D., Payne, R.L. & Wall, T.D. (2003). Is job a viable unit of analysis? A multilevel analysis of demand-control-support models. *Journal of occupational health psychology, 8* (3), 209-219.

Morrison, E. W., & Phelps, C. C. (1999). Taking charge at work: Extra-role efforts to initiate workplace change. *Academy of Management Journal, 42*, 403–419.

Mowday, R., Steers, R., Porter, L. (1979). The measurement of organisational commitment, *Journal of Vocational Behaviour, 14*, 224-247.

Murphy, L.J., & Cooper, C.L. (Eds.) (2000). *Healthy and productive work: an international perspective*. London: Taylor & Francis.

Murphy, P. R., & Jackson, S. E. (1999). Managing work role performance: challenges for twenty-first century organizations and their employees. D.R. Ilgen & E.D. Pulakos (Eds.), *The changing nature of performance: Implications for staffing, motivation, and development*. San Francisco: Jossey-Bass.

Murray, G. Belanger, J., Giles, A. & Lapointe, P-A. (Eds.) (2002). *Work Employment Relations in the High-Performance Workplace*. London and New York: Continuum.

Nix, G. A., Ryan, R. M., Manly, J. B., & Deci, E. L. (1999). Revitalization through self-regulation: The effects of autonomous and controlled motivation on happiness and vitality. *Journal of Experimental Social Psychology, 35*, 266–284.

Neal, A., West, M.A. & Patterson, M.G. (2005). Do organizational climate and competitive strategy moderate the relationship between Human Resource Management and productivity? *Journal of Management, 31*(4), 1-21.

Nunnally, J.C. (1978). *Psychometric Theory*. New York: McGraw-Hill.

Organ, D. W. (1988). *Organizational Citizenship Behavior - The Good Soldier Syndrome.* Lexington: Massachusetts/Toronto.

Osterman, P. (1995). Work-Family Programs and the Employment Relationship. *Administrative Science Quarterly, 40*, (4), 681-700.

Ostroff, C., & Bowen, D.E. (2000). Moving HR to a higher level: Human resource practices and organisational effectiveness. In: K.J. Klein & S.W. Kozlowski (Eds.). *Multilevel theory, research, and methods in organizations* (pp. 211-266). San Francisco: Jossey-Bass.

Paauwe, J. (2004). *HRM and Performance: Achieving long-term value*. Oxford: Oxford University Press.

Paauwe, J. & Boselie, P. (2005). HRM and performance: What's next? *Human Resource Management Journal, 15*(4), p. 68-83.

Paauwe, J., & Boselie, P. (2007). HRM and Societal Embeddedness. In Boxall, P., Purcell, J., & Wright, P.M. (Eds.), *The Oxford Handbook of Human Resource Management*. Oxford: Oxford University Press.

Parker, M. & Slaughter, J. (1995). Unions and management by stress. In S. Babson (Ed.), *Lean Work: Empowerment and Exploitation in the Global Auto Industry*. Cambridge (MA): MIT Press.

Parker, S.K. & Wall, T.D. (1998). *Job and work design:Organizing work to promote well-being and effectiveness*. Thousand Oaks, CA: Sage.

Parker, S.K., Wall, T.D. & Jackson, P. R. (1998). "That's not my job": Developing flexible employee work orientations. *Academy of Management Journal, 40,* 899–929.

Parker, S.K. & Sprigg, C.A. (1999). Minimising strain and maximising learning: The role of job demands, job control and proactive personality. *Journal of Applied Psychology, 84, 6*, 925-939

Parker, S.K. (2000). From passive to proactive motivation: The importance of flexible role orientations and role breadth self-efficacy. *Applied Psychology: An International Review, 49,* 447–469.

Parker, S.K., & Turner, N. (2002). Work design and individual work performance: Research findings and an agenda for future inquiry. In S. Sonnentag (Ed.), *Psychological Management of Individual Performance* (pp. 69-93). John Wiley & Sons, Ltd.

Parker, S.K., Williams, H.M. & Turner N. (2006) Modelling the antecedents of proactive behavior at work. *Journal of Applied Psychology, 91(3),* 636-652.

Parker, S.K., Wall, T.D., & Cordery, J.L. (2001). Future work design research and practice: Towards an elaborated model of work design. *Journal of Occupational and Organizational Psychology, 74,* 413–440.

Patterson M.G., Warr P. & West M.A. (2004). Organizational climate and company productivity: The role of employee affect and employee level. *Journal of Occupational and Organizational Psychology, 77* (2), 193-216.

Patterson, M.G., West, M.A., Shackleton, V.J., Dawson, J.F., Lawthom, R., Maitlis, S., Robinson, D.L., & Wallace, A.M. (2005). Validating the organizational climate measure: links to managerial practices, productivity and innovation. *Journal of Organizational Behavior, 26*, 379-408.

Peccei, R. (2004). *Human Resource Management and the Search for the Happy Workplace.* Unpublished Inaugural Address, Erasmus University, Rotterdam.

Pfeffer, J. (1994). *Competitive Advantage through people: unleashing the power of the workforce*. Boston: Harvard Business School Press.

Podsakoff, P., MacKenzie, S., Paine, J., & Bacharach, D. (2000). Organizational citizenship behaviors: A critical review of the theoretical and empirical literature and suggestions for future research. *Journal of Management, 26 (3),* 513–563.

Purcell, J. & Hutchinson, S. (2007). Front-line managers as agents in the HRM-performance causal chain: theory, analysis and evidence. *Human Resource Management Journal, 17*(1), 3-20.

Purcell, J., & Kinnie, N. (2007). HRM and Business Performance. In P. Boxall, J. Purcell & P. Wright (Eds.), *The Oxford Handbook of Human Resource Management*. Oxford: Oxford University Press.

Purcell, J., Kinnie, N., Hutchinson, S., Rayton, B., & Swart, J. (2003). *Understanding the people and performance link: unlocking the black box*. CIPD: London.

Purcell, J. (1999). Best practice and best fit: chimera or cul-de-sac. *Human Resource Management Journal*, 9, 3, 26-41

Ramsay, H., Scholarios, D.,& Harley, B. (2000). Employees and High-Performance Work Systems: Testing inside the Black Box. *British journal of industrial relations*, 38 (4), 501-532.

Ryan, R.M., & Frederick, C.M. (1997). On energy, personality, and health: Subjective vitality as a dynamic reflection of well-being. *Journal of Personality, 65,* 529-565.

Ryan, A.M., Schmit, M.J. & Johnson R. (1996). Attitudes and effectiveness: Examining relations at an organizational level. *Personnel Psychology, 49*, 853-882.

Salanova, M., Bakker, A.B., & Llorens, S. (2006). Flow at work: Evidence for an upward spiral of personal and organizational resources. *Journal of Happiness Studies, 7*, 1-22.

Salanova, M. & Schaufeli, W.B. (2008). A cross-national study of work engagement as a mediator between job resources and proactive behaviour. *International Journal of Human Resource Management, 19*, 116-131.

Schabracq, M. J. & Winnubst. (1996). Issues of the Second Career Half. In Marc J. Schabracq, Jacques A.M. Winnubst, Cary L. Cooper (Eds.). *The Handbook of Work and Health Psychology*. London: Wiley.

Schaufeli, W.B., Salanova, M., González-Romá, V., & Bakker, A.B. (2002). The measurement of burnout and engagement: A confirmatory factor analytic approach. *Journal of Happiness Studies, 3*, 71-92.

Schaufeli, W., Bakker, A. (2001). Werk en welbevinding. Naar een positieve benadering in de arbeids- en gezondheidspsychologie [Work en well-being: Towards a posirtive approach in occupational health psychology]. *Gedrag & Organisatie, 5*, 229 – 253.

Schaufeli, W. B., & Bakker, A. B. (2004). Job demands, job resources and their relationship with burnout and engagement: A multi-sample study. *Journal of Organizational Behavior, 25*, 293-315.

Schnake, M. (2007) An integrative model of effort propensity. *Human Resource Management Review, 17* (3), 274-289.

Schneider, B., Hanges, P.J., Smith, D.B., & Salvaggio, A.N. (2003). Which comes first: Employee attitudes or organizational financial and market performance. *Journal of Applied Psychology, 88*, 836-851.

Jackson, S.E. & Schuler, R.S. (1995). Understanding human resource management in the context of organizations and their environments. In M. Rosenweig and L. Porter (eds.), *Annual Review of Psychology* (pp. 237–264). Palo Alto, CA: Annual Reviews.

Schurer Lambert, L., Edwards, J. R. & Cable, D. M. (2003). Breach and fulfilment of the psychological contract: a comparison of traditional and expanded views. *Personnel Psychology, 56*(4), 895-934.

Seligman, A.E.P. & Csikszentmihalyi, M. (2000). Positive Psychology: an introduction. *American Psychologist, 55*, 5-14.

Sels, L., De Winne, S., Maes, J., Delmotte, J., Faems, D. & Forrier, A. (2006a). Unravelling the HRM-Performance Link: Value-Creating and Cost-Increasing Effects of Small Business HRM. *Journal of Management Studies 43* (2), 319–342.

Sels, L., De Winne, S., Delmotte, J., Maes, J., Faems, D. & Forrier, A. (2006b). Linking HRM and Small Business Performance: An Examination of the Impact of HRM Intensity on the Productivity and Financial Performance of Small Businesses. *Journal Small Business Economics, 26* (1), 83-101.

Sennett. P. (2006). *The Culture of the New Capitalism*. Yale University Press.

Shapiro, C. & Stiglitz, J.E. (1984). Equilibrium Unemployment as a Worker Discipline Device. *American Economic Review, 74* (3), 433-444.

Siegrist J. (1996). Adverse health effects of high-effort/low-reward conditions. *Journal of Occupational Health Psychology, 1*(1), 27-41.

Sitter, L.U. de (1994). *Synergetisch produceren. Human Resources Mobilisation in de produktie: een inleiding in structuurbouw*. Assen: Van Gorcum.

Snijders, T. & Bosker, R. (1999). *Multilevel Analysis: An introduction to basic and advanced multilevel modelling*. Thousand Oaks: Sage Publishers.

Sonnentag, S. (2003). Recovery, work engagement, and proactive behavior: A new look at the interface between non-work and work. *Journal of Applied Psychology, 88*, 518-528.

Sonnentag, S. (2002) Performance, Well-being and Self-Regulation. In S. Sonnentag (Ed.), *Psychological Management of Individual Performance.* London: Wiley.

Sonnentag, S. & Frese, M. (2002). Performance Concepts and Performance Theory. In S. Sonnentag (Ed.), *Psychological Management of Individual Performance.* London: Wiley.

Spreitzer, G., Sutcliffe, K., Dutton, J., Sonenshein, S., & Grant, A. (2005). A socially embedded model of thriving at work. *Organization Science, 16*, 537–549.

Staw, B.M. (1986). Organizational Psychology and the Pursuit of the Happy/Productive Worker. *California Management Review, 28*(4), 40–53 .

Steijn, B. (2001). Work systems, Quality of Working Life and Attitudes of Workers. An Empirical Study towards the effects of Team and non-Teamwork. *New Technology, Work, and Employment, 16*(3), 191-203.

Stiles, P., Gratton, L., Truss, C., Hope-Hailey, V. & McGovern, P. (1997). Performance management and the psychological contract. *Human Resource Management Journal, 7* (1), 57–66.

Sun, L., Aryee, S. & Law, K.S. (2007). High-Performance Human Resource Practices, Citizenship Behavior and Organizational Performance: A Relational Perspective. *Academy of Management Journal,50*(3), 558- 577.

Takeuchi, R., Lepak, D. P., Wang, H., & Takeuchi, K. (2007). An empirical examination of the mechanisms mediating between high performance work systems and the performance of Japanese organizations. *Journal of Applied Psychology, 92,* 1069-1083.

Taris, T.W. (2007). *Aldoende leert men: werkkenmerken en leergedrag op het werk*. Radboud Universiteit Nijmegen: Inaugurele rede.

Taris, T., Cox, T and Tisserand, M. (200 8) Engagement at work: An emerging concept. *Work & Stress, 22*, 185-186.

Taris, T.W., Kompier, M., De Lange, A.H., Schaufeli, W.B. & Schreurs, P.J.G. (2003). Learning new behaviour patterns: a longitudinal test of Karasek's active learning hypothesis among Dutch teachers. *Work & Stress, 17 (1),* 1-20.

Taris, T.W., Schaufeli, W.B. & Verhoeven, L.C. (2005). Workaholism in the Netherlands: Measurement and implications for job strain and work-nonwork conflict. *Applied Psychology: An International Review, 54*(1): 37-60.

Teece, D., Pisano, G. and Shuen, A. (1997). Dynamic Capabilities and Strategic Management. *Strategic Management Journal, 18*(7), 509-533.

Thijssen, J.G.L.& Van der Heijden, B.I.J.M. (2003). Employability in the focus of attention. In: M.J. Morley (Ed.), *Exploring the mosaic, developing the discipline (pp.* 229-250*)*. Dublin: Intersource Group Publishing.

Toh, S.M., Morgeson, F.P., & Campion, M.A. (2008). Human resource configurations: Investigating fit with the organizational context. *Journal of Applied Psychology, 93*, 864-882.

Truss, C., Gratton, L., Hope-Hailey, V., McGovern, P. & Stiles, P. (1997). Soft and Hard Models of Human Resource Management: A Reappraisal. *Journal of Management Studies, 34* (1), 53–73.

Truss, C. (2001). Complexities and controversies in linking HRM with organizational outcomes. *Journal of Management Studies 38*(8), 1122-1149.

Tsui, A.S. (1990). Multiple-Constituency Model of Effectiveness: An Empirical Examination at the Human Resource Subunit Level. *Administrative Science Quarterly, 35*, 458-84

Tsui, A. S., Pearce, J.L., Porter, L.W. and Hite, J. (1995). Choice of employee- organization relationship: Influence of external and internal organizational factors. In G. Ferris (Ed.), *Research in Personnel and Human Resource Management*, Vol 13 (pp. 117-151). Greenwich, CT: JAI Press.

Tsui, A.S., Pearce, J.L., Porter, L.W. & Tripoli, A.M. (1997). Alternative Approaches to the Employee-Organization Relationship: Does Investment in Employees Pay off? *Academy of Management Journal, 40*(5), 1089-1121.

Tsui, A.S., & Wu, J.B. (2005) The "New Employment Relationship" versus the "Mutual Investment" approach: Implications for human resource management. *Human Resource Management, 44*(2), 115-121.

Vandenberg, R.J., Richardson, H.A. & Eastman, L.J. (1999). The impact of high involvement work processes on organizational effectiveness. *Group & Organization Management,* 24 (3), 300-339.

Vroom V H. (1964). *Work and motivation*. New York: Wiley.

Vandenberg, R.J., Richardson, H.A. & Eastman, L.J. (1999). The impact of high involvement work processes on organizational effectiveness. *Group & Organization Management, 24* (3), 300-339.

van Dam, K. (2004). Antecedents and consequences of employability orientation. *European Journal of Work and Organizational Psychology, 13*(1), 29-51.

Van Dyne, L., & LePine, J.A. (1998). Helping and voice extra-role behavior: Evidence of construct and predictive validity. *Academy of Management Journal, 41*, 108-119.

van Eijnatten, F.M. (2000). From intensive to sustainable work systems: The quest for a new paradigm of work. In M. Sapir (Ed.), Conference proceedings: *Working without limits? Re-organising work and reconsidering workers' health: Plenary sessions*. (pp. 47-66). TUTB-SALTSA Conference, Brussels, 25-27 September.

van Vegchel, N., de Jonge, J., Bosma, H. & Schaufeli, W. (2005). Reviewing the effort-reward imbalance model: drawing up the balance of 45 empirical studies. *Social Science & Medicine, 60*, 1147-1131.

van Veldhoven, M.J.P.M. (1996). *Psychosociale arbeidsbelasting en werkstress*. Lisse: Swets & Zeitlinger.

van Veldhoven, M.J.P.M (2005). Financial performance and the long-term link with HR practices, work climate and job stress. *Human Resource Management Journal, 15*(4), 30-53.

van Veldhoven, M.J.P.M. & Meijman, T.F. (1994). *The measurement of psychosocial job demands with a questionnaire: the questionnaire on the experience and evaluation of work (VBBA).* Amsterdam: NIA.

van Veldhoven, M.J.P.M. & Broersen, S. (2003). Measurement Quality and Validity of the Need for Recovery Scale. *Occupational and Environmental Medicine, 60 (Suppl 1),* i3-i9.

van Veldhoven, M., Taris, T., de Jonge, J., & Broersen, S. (2005). The relationship between work characteristics and employee health and well-being: how much complexity do we really need? *International Journal of Stress Management, 12*(1), 3-28.

van Veldhoven, M.J.P.M & Dorenbosch, L.W. (2008).. Age, Proactivity and Career Opportunities. *Career Development International, 13*(2), 112-131.

van Yperen, N. W., & Snijders, T. A. B. (2000). A multilevel analysis of the demands-control model: Is stress at work determined by factors at the group level or the individual level? *Journal of Occupational Health Psychology, 5*, 182–190.

Volberda, H.W. (1996). Toward the flexible firm: How to remain vital in hypercompetitive environments. *Organization Science, 7*(4), 359-374.

Wall, T. D., Michie, J., Patterson, M., Wood, S. J., Sheehan, M., Clegg, C. W., & West M. A. (2004). On the validity of perceived company financial performance. *Personnel Psychology, 57*, 95-118.

Wall, T.D., & Wood, S. J. (2005). The romance of HRM and business performance, and the case for big science. *Human Relations, 58*, 429-462.

Wall, T. D., Cordery, J. L., & Clegg, C. W. (2002). Empowerment, performance and operational uncertainty: A theoretical integration. *Applied Psychology: An International Review, 51*, 146-169.

Wallace, C., & Chen, G. (2006). A multilevel integration of personality, climate, self-regulation, and performance. *Personnel Psychology, 59*(3), 529-557.

Walton, R. E. (1985). From control to commitment in the workplace. *Harvard Business Review, 63* (2), 77-84.

Wanous, J.P., Reichers, A.E., & Hudy, M. J. (1997). Overall job satisfaction: How good are single-item measures? *Journal of Applied Psychology, 82*, 247-252.

Warr, P.B. (1994). A conceptual framework for the study of work and mental health. *Work & Stress, 8,* 84–97.

Warr P.B. (1990). The measurement of well-being and other aspects of mental health. *Journal of Occupational Psychology, 63,* 193-219.

Warr, P.B. & Fay, D. (2001). Age and personal initiative at work. *European Journal of Work and Organizational Psychology, 10*, 343-53.

West, M.A., & Anderson, N. (1996). Innovation in top management teams. *Journal of Applied Psychology, 81(6),* 680–693.

White, M.R., Hill, S., McGovern, P., Mills, C. & Smeaton, D. (2003). High-performance management practices, working hours and work-life balance. *British Journal of Industrial Relations, 41*, 175-195.

Whitener, E.M. (2001). Do 'high commitment' human resource practices affect employee commitment? *Journal of Management, 27*, 515–35.

Whitfield, K. & Poole, M. (1997). Organizing employment and high performance: theories, evidence and policy. *Organization Studies, 18*(5), 745-64.

Wood, S.J. (1999a). Getting the measure of the transformed high-performance organization. *British Journal of Industrial Relations, 37*, (3), 391-417.

Wood, S.J. (1999b) Human resource management and performance. *International Journal of Management Reviews. 1*, 367-413.

Wright, P.M., & Haggerty, J.J. (2005). Missing Variables in Theories of Strategic Human Resource Management: Time, Cause, and Individuals. *Management revue, 16*(2), 163-173.

Wright, P. M., Gardner, T. M., Moynihan, L. M. and Allen, M. R. (2005). The Relationship between HR Practices and Firm Performance: Examining Causal Order. *Personnel Psychology, 58,* 409-446.

Wright, P.M. & Nishii, L.H (2004). Strategic HRM and organizational behaviour: integrating multiple levels of analysis. *Working paper presented at the International seminar on HRM: What's Next?* Organized by the Erasmus University Rotterdam, June 2004.

Wright, P.M. & Gardner, T.M. (2003) The Human Resource-Firm Performance relationship: Methodological and Theoretical Challenges in Holman, D., Wall, T.D, Clegg, C.W., Sparrow, P. & Howard, A. (Eds.) *The New Workplace: A guide to the human impact of modern working practices.* Chichester: Wiley.

Wright, P. M., Gardner, T. M., & Moynihan, L. M., (2003). The Impact of HR Practices on the performance of Business Units. *Human Resource Management Journal, 13*(3), 21-36.

Wright, P.M. and Boswell, W.R. (2002). Desegregating HRM: a review and synthesis of micro and macro human resource management research. *Journal of Management, 28*(3), 247-276.

Wright, P.M., Dunford, B. & Snell, S. (2002). Human resources and the resource based view of the firm. *Journal of Management, 27*(6), 701-712.

Wright, T.A. & Cropanzano, R. (2000). Psychological Well-being and Job Satisfaction as Predictors of Job Performance. *Journal of Occupational Health Psychology, 5* (1), 84–94.

Wright, T.A. & Staw, B.M. (1999). Affect and Favorable Work Outcomes: Two Longitudinal Tests of the Happy-Productive Worker Thesis. *Journal of Organizational Behavior, 20* (1), 1–23.

Xie, J.L. & Johns, G. (1995). Job Scope and Stress: Can Job Scope Be Too High? *Academy of Management Journal, 38* (5), 1288-1309.

Yeo, G. & Neal, A. (2004). A multilevel analysis of effort, practice and performance: Effects of ability, conscientiousness and goal orientation. *Journal of Applied Psychology, 89*, 231-247.

Yin, R.K. (2002). *Case Study Research: Design and Methods*. London: Sage.

Zacharatos, A., Barling, J., & Iverson, R. (2005). High performance work systems and occupational safety. *Journal of Applied Psychology, 90*(1), 77-93.

Zahra, S. A., Sapienza, H. J. & Davidson, P. (2006) Entrepreneurship and dynamic capabilities: a review, model and research agenda. *Journal of Management Studies, 43*(4), 917-955.

Appendix A

High Performance Work Practices Measures

INTERNAL STAFFING EFFICIENCY

Indicator	Rater	Items	Measurement Scale
Use/Presence	HRA	*Use of external/employment agency types?* ❖ Employment Agency ❖ Detachment Agency ❖ External Recruitment & Selection Agency ❖ Flex pool	*Work unit makes use of:* 1 = 4 agency types 2 = 3 agency types; 3 = 2 agency types 4 = 1 agency type ; 5 = no use of agencies) (reverse coded)
	HRA	*Presence of practices to deal adequate w/staffing needs?* ❖ Systematic future planning ❖ Adequate termination period to find replacement ❖ Transparent administration on contract-endings and retirement dates	*Work unit makes use of:* 1 = 1 staffing practice 3 = 2 staffing practices 5 = 3 staffing practices
Sophistication	FLM HRA	*Incidental labour shortages solved by permanent staff?*	1 = to a very little extent - 5 = to a very large extent
	FLM HRA	*New vacancies filled by internal candidates?*	1 = to a very little extent - 5 = to a very large extent
	FLM HRA	*Tighter staffing than 2 years ago?*	1 = less work volume with more FTE 2 = equal/less work volume with more/equal FTE 3 = less/equal/more with less/equal/more FTE 4 = equal/more work volume with less/equal FTE 5 = more work volume with less FTE
Effectiveness	FLM HRA	*Satisfied with (new) employees in their first year in function?*	1 = to a very little extent - 5 = to a very large extent

Note: HRA = internal HR advisor / FLM = first line manager

FUNCTIONAL TRAINING

Indicator	Rater	HPWP Items	Measurement Scale
Presence/Use	HRA	*How many training days a year?*	1 = 0-2 days; 2 = 3-4 days 3 = 5-6 days 4 = 7-10 days 5 = > 10 days
Sophistication	FLM HRA	*To what extent to employees have a say in the type of training they receive?*	1 = to a very little extent - 5 = to a very large extent
	FLM HRA	*To what extent are learning & performance effects of training evaluated?*	1 = to a very little extent - 5 = to a very large extent
Effectiveness	FLM HRA	*At this moment are employees adequately trained and educated to deal with current job demands?*	1 = to a very little extent - 5 = to a very large extent

Note: HRA = internal HR advisor / FLM = first line manager

WORK-LIFE BALANCE

Indicator	Rater	HPWP Items	Measurement Scale
Use/Presence	HRA	*Which of the following arrangements are used to stimulate work-life balance?* ❖ Flexible start/finishing times ❖ Alternative work hour composition (4x 9 hours/week) ❖ Supported teleworking ❖ Temporary part-time working ❖ Long-term leave (> 3 months) with return guarantee ❖ Supported child care arrangements ❖ Trading salary for extra leaves ❖ Creation of duo-jobs (1 job with two employees)	1= 1-2 arrangements 2 = 3 arrangements 3 = 4 arrangements 4 = 5 arrangements 5 = 6-7 arrangements
Sophistication	FLM HRA	*To what extent are work-life arrangements actively used by employees in this department?*	1 = to a very little extent - 5 = to a very large extent
Effectiveness	FLM HRA	*To what extent can employees keep working in their current jobs when private circumstances change?*	1 = to a very little extent - 5 = to a very large extent

Note: HRA = internal HR advisor / FLM = first line manager

CAREER DEVELOPMENT

Indicator	Rater	HPWP Items	Measurement Scale
Use/Presence	HRA	*Use of practices to stimulate employee career development & mobility?* ❖ Frequent Career Assessments ❖ Personal development plan ❖ Internal mobility centre ❖ Career programs for certain employee groups (e.g. high potentials, women) ❖ Extensive retraining possibilities	1 = 0-1 practices 2 = 2 practices 3 = 3 practices 4 = 4 practices 5 = 5 practices
Sophistication	FLM HRA	*To what extent has the majority of employees the possibility for vertical growth?*	1 = to a very little extent - 5 = to a very large extent
	FLM HRA	*To what extent do employees have the possibility to choose from different internal career paths (in contrast to largely fixed career paths)?*	1 = to a very little extent - 5 = to a very large extent
	FLM HRA	*In their current job, to what extent do employees have the possibility for horizontal growth?* ❖ by obtaining more formal responsibilities ❖ by obtaining more job challenges	1 = no possibilities 3 = obtaining either more responsibilities or challenges; 5 = possibility to obtain both
	FLM HRA	*Achieving developmental goals a central part of the job feedback?*	1 = to a very little extent - 5 = to a very large extent
	FLM HRA	*To what extent do employees have a say in the developmental goals they want to pursue?*	1 = to a very little extent - 5 = to a very large extent
Effectiveness	FLM HRA	*In their current job, to what extent are employees adequately "in motion" to avoid developmental stagnation in the long run?*	1 = to a very little extent - 5 = to a very large extent

Note: HRA = internal HR advisor / FLM = first line manager

ATTRACTIVE WAGES & BENEFITS

Indicator	Rater	HPWP Items	Measurement Scale
Use/Presence	HRA	*How would you rate the base wages in this unit in comparison to wages in comparable jobs in other organizations?*	1 = lower 3 = equal 5 = higher
	HRA	*On how many accounts do financial benefits/perks within this department positively differ from those in the formal Collective Bargaining Agreement?* ❖ % employer contribution in health insurance ❖ % sick pay / contribution to child care costs ❖ number of paid vacation days ❖ discount products-services ❖ trading vacation days for salary	1 = on 0 accounts 2 = on 1 account 3 = on 2-3 accounts 4 = on 4 accounts 5 = on 5 accounts
Sophistication	FLM HRA	*To what extent is their room to negotiate start salaries when qualified job applicants are not satisfied with their first offer?*	1 = to a very little extent - 5 = to a very large extent
	FLM HRA	*To what extent is their room to negotiate salaries when qualified employees threaten to leave the organization?*	1 = to a very little extent - 5 = to a very large extent
Effectiveness	FLM HRA	*To what extent do the wages enable you to attract the right employees?*	1 = to a very little extent - 5 = to a very large extent
	FLM HRA	*To what extent do the wages enable you to retain the right employees?*	1 = to a very little extent - 5 = to a very large extent

Note: HRA = internal HR advisor / FLM = first line manager

PERFORMANCE APPRAISAL

Indicator	Rater	HPWP Items	Measurement Scale
Use/Presence	HRA	*Type of (non-) incentivized employee appraisal (behavioural/result/both)?*	1 = only non-incentivized behavioural 2 = incentivized behavioural or non-incentivized result-based 3 = only incentivized result-based 4 = both non-incentivized behavioural & result-based 5 = both incentivized behavioural & result-based appraisal
	HRA	*How many pay components make up the employees' total reward?*	1 = only base salary (BS); 2 = BS + paid overwork hours 3 = BS + individual bonuses 4 = BS + general + indiv bonuses 5 = BS + paid overwork hours + general + indiv bonuses
Sophistication	FLM HRA	*Times per year that employees receive formalized job/performance feedback*	1 = 1 time p/year 3 = 2 times p/year 5 = 3 times p/year or more
	FLM HRA	*Achieving result-based goals a central part of the job/performance feedback?*	1 = to a very little extent; 5 = to a very large extent
	FLM HRA	*Based on how many criteria is employee functioning tied to extra pay?*	1 = 0-1 criteria 2 = 2 criteria 3 = 3 criteria 4 = 4 criteria 5 = 5 criteria
Effectiveness	FLM HRA	*Performance appraisal differentiate between high and low performing employees?*	1 = to a very little extent; 5 = to a very large extent

Note: HRA = internal HR advisor / FLM = first line manager

Appendix B

Employee Work Experiences Measures

OPTIMAL STAFFING

Do you think that the company uses too many temporary contracts?	1 = never
Do you think that the company uses too many temporary staff?	2= sometimes
Do you think that there is sufficient staff on permanent contracts?	3 = often
Do you think that newly hired staff is sufficiently qualified for the job?	4 = always

JOB AUTONOMY

Do you have freedom in carrying out your work activities?	1 = never
Can you decide how your work is executed on your own?	2= sometimes
Can you personally decide how much time you need for a specific activity?	3 = often
Can you organise your work yourself?	4 = always

JOB VARIETY

Does your work require creativity?	1 = never
Is your work varied?	2= sometimes
Does your work require personal input?	3 = often
Do you have enough variety in your work?	4 = always

LEARNING OPPORTUNITIES

I learn new things in my work	1 = largely disagree
My job offers me opportunities for personal growth and development	2 = disagree
My work gives me the feeling that I can achieve something	3 = nor agree nor disagree
	4 = agree
	5 = largely agree

JOB CLARITY

Do you know exactly what other people expect of you in your work? Do you know exactly for what you are responsible and which areas are not your responsibility? Do you know exactly what you can expect of other people in your department? Is it clear to you exactly what your tasks are?	1 = never 2= sometimes 3 = often 4 = always

JOB FEEDABCK

Do you receive sufficient information on the results of your work? Does your work give you the opportunity to check on how well you are doing your work? In your work, do you have access to sufficient data and information?	1 = never 2= sometimes 3 = often 4 = always

DEVELOPMENTAL OPPORTUNITIES

This organisation gives me enough training and educational opportunities to perform better in my job I am satisfied with the developmental possibilities with regard to a future job I receive enough guidance with regard to my career development	1 = largely disagree 2 = disagree 3 = nor agree nor disagree 4 = agree 5 = largely agree

CAREER POSSIBILITIES

My job offers me the possibility to progress financially My job gives me the opportunity to be promoted My your current job improves my chances and opportunities on the job market	1 = largely disagree 2 = disagree 3 = nor agree nor disagree 4 = agree 5 = largely agree

JOB-EDUCATIONAL MATCH

Do your qualifications match your current job?	1 = No, over-qualified 3 = No, under-qualified 5 = Yes ,exactly qualified

WORK-LIFE SUPPORT

Can you take days off when it suits you? Are your working hours and rest periods well organised? Do you have the possibility of working hours which suit the particular requirements of your private life? Is your private life adversely affected by irregular working hours? Does your employer ever rescind your free days or ADV? Can you decide when you take a break?	1 = never 2= sometimes 3 = often 4 = always

EFFORT-REWARD BARGAIN

My organisation pays good salaries I can live comfortably on my pay	1 = largely disagree 2 = disagree 3 = nor agree nor disagree 4 = agree 5 = largely agree